

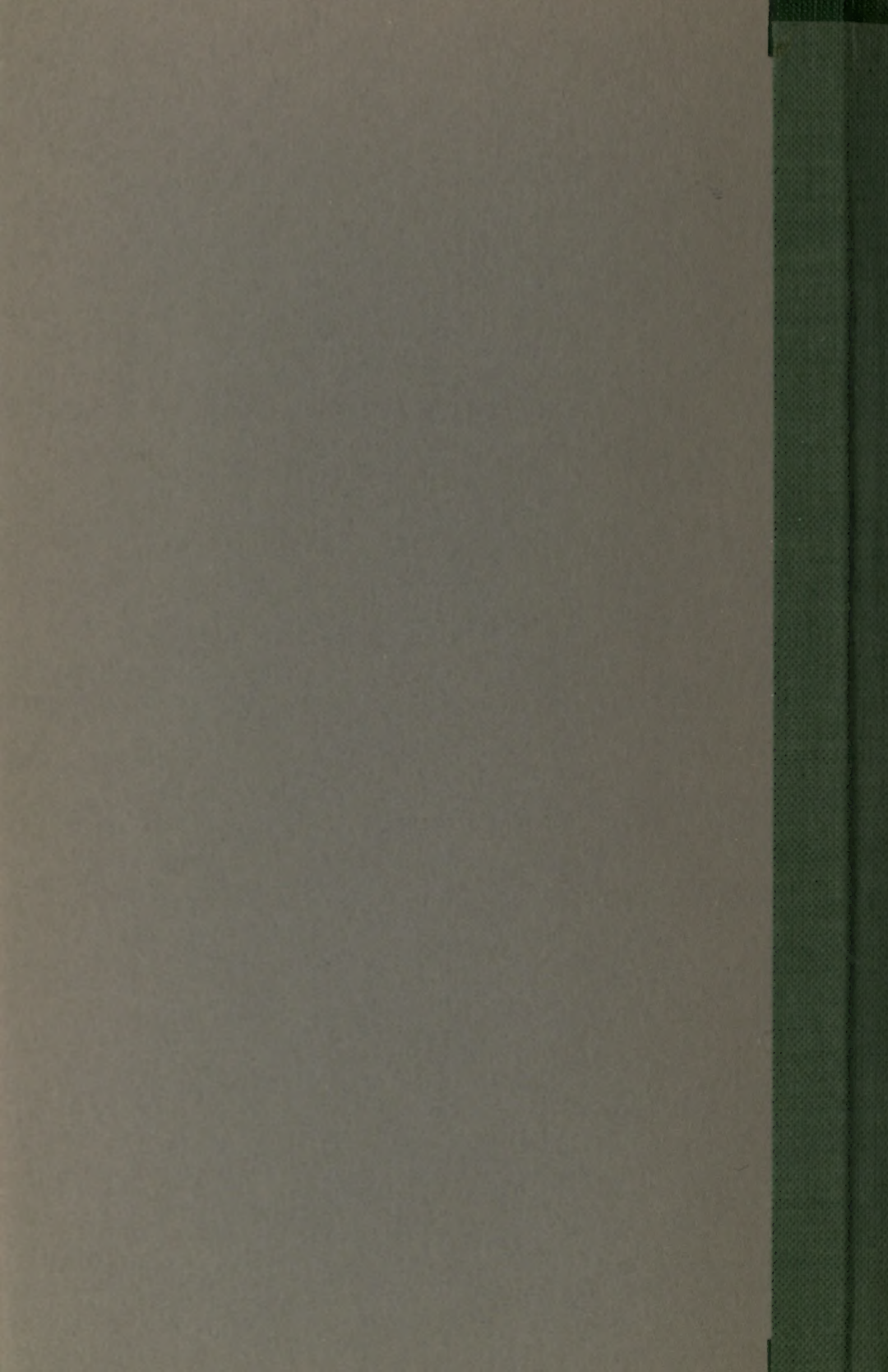
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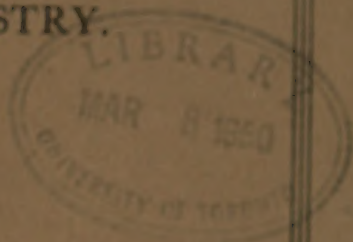
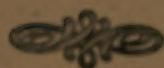
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National Council of the  
Pottery Industry  
Information relating  
to the pottery industry  
in Japan

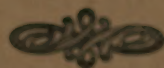


NATIONAL COUNCIL  
— OF THE —  
POTTERY INDUSTRY.



*Information relating  
to the*

Pottery Industry  
in Japan.



*Council Offices :*  
6, GLEBE STREET, STOKE-ON-TRENT.  
1921-1922.







## PREFACE.

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IN view of the keen interest manifested by British Pottery Manufacturers and others engaged in the Industry in regard to the development of the Pottery Industry in Japan, arrangements were made for members of the National Council and others interested to be addressed on the subject at a meeting of the National Council held in January, 1920, by the Commercial Counsellor to the British Embassy in Japan (Sir E. T. F. Crowe, Kt., C.M.G.), who was then on a visit to this country. In the course of his Address, Mr. Crowe gave much valuable and interesting information, and pointed out that his object in attending the meeting was mainly to find out in what way he could be of assistance in furthering British trade. He was in the position of being able to obtain a good deal of information and suggested that the Council might furnish him with points on which they desired particulars, which he would endeavour to supply. As a consequence, a detailed Questionnaire was drawn up by the Council and forwarded to Mr. Crowe, and his replies and Report on the subject are included in this Brochure and will doubtless prove valuable to Manufacturers in this Country and especially to those in whose markets the Japanese are met as competitors.

Other Reports and Articles bearing on the subject are also included and although in some instances details from various sources are repetitive it is considered that as a whole, the information contained in such reports is of such value as to warrant their inclusion.

It is sincerely hoped by the National Council that in view of the heavy expense incurred in publishing this information, the Reports will be well studied and that much benefit will be derived therefrom.

The Hearty thanks of the National Council are expressed to Sir E. T. F. Crowe, Mr. Sansom and the Department of Overseas Trade for their valuable assistance, and also to the "Pottery Gazette" and the "Times Trade Supplement" for their kind permission to reprint several articles on the subject.

FRANK H. WEDGWOOD, Chairman,  
JAMES DERRY, Vice-Chairman,  
FRED. H. HAND, Secretary.

## PREFACE

**NOTE:** In the various reports, rates are given in YEN and SEN—ONE YEN equals 100 SEN.

The par value of the Yen is 2s. 0½d., and though its exchange value varies at present from 2s. 4d. to 2s. 6d., for the purpose of Table I., page 11, a SEN is regarded as equal to ONE FARTHING.

For the convenience of readers, the English equivalents have been printed against the Japanese values in the report of Sir E. T. F. Crowe.

F.H.H.



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3. Report from Sir E. T. F. Crowe, Kt., C.M.G., H.M. Commercial Counsellor at Yokohama, as prepared by Mr. G. B. Sansom, Acting Commercial Secretary to H.M. Embassy at Tokyo, containing replies to the Questionnaire referred to.
4. Copy Letter from Mr. G. B. Sansom as to the comparison of the Standard of Living of Workpeople in Japan with that of the Standard in Great Britain.
5. Copy Letter from Sir E. T. F. Crowe, Kt., C.M.G., with extract from the *Japan Advertiser*.
6. Factory Laws and Regulations as to their enforcement, issued by the Department of Agriculture and Commerce, Tokyo.
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8. Report made to the U.S. Pottery Manufacturers' Association, on the manufacture of Pottery in Japan. (Extracted from the *Pottery Gazette* by permission.)
9. Article extracted (by permission) from the "Japanese Section" of the *Times Trade Supplement* on the Commercial and Industrial Organization of Japan; Guilds and Trade Unions, and the Compulsory Inspection of Exports.
10. Article on Ceramic Lore, extracted from the "Japanese Section" of the *Times Trade Supplement* (by permission).



# QUESTIONNAIRE

## AS TO THE POTTERY INDUSTRY IN JAPAN,

Forwarded by the National Council.

September, 1920.

No. I.

### Sections of the Pottery Industry

Information desired for each Section.

	China	General Earthenware	Jet and Rockingham	Sanitary	Electrical Porcelain	Glazed and Floor Tiles
1. Number of Factories . . . . .						
2. Total number of workers in each Section of the Industry : Male . . . . . Female . . . . .						
3. Commencing age of Juvenile workers : (a) Boys . . . . . (b) Girls . . . . .						
4. Hours worked per week :						

4. Hours worked per week :





# QUESTIONNAIRE—Continued.

Sections of the Pottery Industry						
	China	General Earthenware	Jet and Rockingham	Sanitary	Electrical Porcelain	Glazed and Floor Tiles
7. Rate of Payment—piecework or day-work, classified as under:—						
(a) Piece Rates.						
English Occupation.						
Similar Occupation in Japan.						
Skilled Men.						
Jiggermen	..	..	..	..	..	..
Turners	..	..	..	..	..	..
Handlers	..	..	..	..	..	..
Dish Makers	..	..	..	..	..	..
Pressers	..	..	..	..	..	..
Casters	..	..	..	..	..	..
Stickers-up	..	..	..	..	..	..
Placers, biscuit	..	..	..	..	..	..
Placers, glost	..	..	..	..	..	..
Dippers	..	..	..	..	..	..
Mould makers	..	..	..	..	..	..
Saggar makers	..	..	..	..	..	..
Warehousemen	..	..	..	..	..	..
Firemen, biscuit and glost	..	..	..	..	..	..
Gilders	..	..	..	..	..	..
Engravers	..	..	..	..	..	..
Printers	..	..	..	..	..	..
Placers, and drawers, decorating	..	..	..	..	..	..
Firemen, decorating	..	..	..	..	..	..
Packers	..	..	..	..	..	..
Skilled women.						
Jiggerwomen	..	..	..	..	..	..
Handlers	..	..	..	..	..	..
Liners	..	..	..	..	..	..
Gilders	..	..	..	..	..	..
Tinters	..	..	..	..	..	..
Skilled men apprentices.						



Jiggersmen*	..	..	..
Turners	..	..	..
Handlers	..	..	..
Dish makers	..	..	..
Pressers	..	..	..
Casters	..	..	..
Placers, biscuit	..	..	..
Placers, glass	..	..	..
Dippers	..	..	..
Sugar makers	..	..	..
Warehousemen	..	..	..
Packers	..	..	..

#### Unskilled men and boys.

Clay puggers	..	..	..
Slip makers	..	..	..
Battens-out	..	..	..
Mould runners	..	..	..
Clay carriers	..	..	..
Straw boys	..	..	..
Handle makers	..	..	..
Glass makers	..	..	..
Dippers' helpers	..	..	..
Sugar makers' helpers	..	..	..
Wart carriers	..	..	..
Pressmen, boiler	..	..	..
Off-boys, kiln	..	..	..

#### Unskilled women and girls.

Handle makers	..	..	..
Finishers	..	..	..
Battens-out	..	..	..
Mould runners	..	..	..
Dippers' helpers	..	..	..
Glass handlers	..	..	..
Wart drawers	..	..	..
Selection and wrapping	..	..	..
Glass makers	..	..	..
Trunk-makers	..	..	..
Bar-makers	..	..	..

#### Miscellaneous occupations.

Porters	..	..	..
Playmen	..	..	..
Engineers	..	..	..

Sections of the Pottery Industry.

7. (b) Day Rates.	English occupation.	Similar occupation in Japan.	China	General Earthenware	Jet and Rockingham	Sanitary	Electrical Porcelain	Glazed and Floor Tiles
			Rate per hour	Rate per hour	Rate per hour	Rate per hour	Rate per hour	Rate per hour
	<b>Skilled men</b>	..	..					
	Jigger men	..	..					
	Turners ..	..	..					
	Handlers	..	..					
	Dish makers	..	..					
	Pressers	..	..					
	Casters ..	..	..					
	Stickers-up	..	..					
	Placers, biscuit	..	..					
	Placers, glost	..	..					
	Dippers ..	..	..					
	Mould makers	..	..					
	Saggar makers	..	..					
	Warehousemen	..	..					
	Firemen, biscuit and glost	..	..					
	Gilders	..	..					
	Engravers	..	..					
	Printers	..	..					
	Placers, and drawers	..	..					
	Firemen, decorating	..	..					
	Packers ..	..	..					
	<b>Skilled women.</b>							
	Jiggerwomen	..	..					
	Handlers	..	..					
	Liners ..	..	..					
	Gilders ..	..	..					
	Tinters ..	..	..					
	<b>Skilled men apprentices.</b>							
	Jiggermen	..	..					
	Turners ..	..	..					
	Handlers	..	..					

Dish makers	..	..
Pressers	..	..
Casters ..	..	..
Placers, biscuit	..	..
Placers, glass	..	..
Dippers ..	..	..
Sagger makers ..	..	..
Warehousmen	..	..
Packers ..	..	..

#### Unskilled men and boys.

Slip makers	..	..
Clay puggers	..	..
Batters-out	..	..
Mould runners	..	..
Clay carriers	..	..
Straw boys	..	..
Handle makers	..	..
Glass makers ..	..	..
Dippers' helpers	..	..
Sagger makers' helpers	..	..
Wage carriers	..	..
Farmers, pecker ..	..	..
Coldmen, kiln ..	..	..

#### Unskilled women and girls.

Fishers	..	..
Handle makers	..	..
Batters-out	..	..
Mould runners	..	..
Dippers' helpers	..	..
Wage carriers	..	..
Ware drawers	..	..
Sealers and wrappers	..	..
Gold stampers	..	..
Transferers	..	..
Barndrakes	..	..

#### Miscellaneous occupations.

Portmen	..	..
Explosionmen	..	..
Engineers	..	..

Amount of hours (if any) over above rates.

\* Includes any makers, unskilled makers, and other frequent occupations.



# QUESTIONNAIRE—continued.

## Sections of the Pottery Industry.

	China		General Earthenware		Jet and Rockingham		Sanitary		Electrical Porcelain		Glazed and Floor Tiles	
	At Factory	F.O.B.	At Factory	F.O.B.	At Factory	F.O.B.	At Factory	F.O.B.	At Factory	F.O.B.	At Factory	F.O.B.
8. † Net price for—												
(a) Plate (approx. 9½" diam.) :												
White ..												
Printed ..												
Lithographed ..												
(b) Covered Vegetable Dish (approx. capacity 52 oz.) :												
White ..												
Printed ..												
Lithographed ..												
(c) Teacup and Saucer (approx. capacity 6-7½ oz.) :												
White ..												
Printed ..												
Lithographed ..												
(d) (i.) Jug (approx. capacity 10 oz.) :												
White ..												
Printed ..												
Lithographed ..												
(ii.) Jug (approx. capacity 30 oz.) :												
White ..												
Printed ..												
Lithographed ..												

(e) Teapot (approx. capacity 30 oz.):  
 White .. ..  
 Printed .. ..  
 Lithographed .. ..

(f) Tile 6 x 6 White glazed .. ..  
 Coloured .. ..  
 Unglazed Floor Tiles .. ..

(g) † 6 piece Toilet Set:  
 1 ewer, approx. capacity 180 oz., height 12"  
 1 basin approx. capacity 220 oz., height 5"  
     diam. 16"  
 1 soap dish (uncovered)  
 1 brush vase or open dish  
 2 chambers, capacity 120 oz., height 5 1/2"  
     diam. 8 1/2"

White .. ..  
 Printed .. ..  
 Lithographed .. ..

† See note, page xiii

9. Are the following packing Dinner Ware, selling  
 under the name of .. ..

If so (a) of what composition? .. ..

If not (b) name chief articles? .. ..

10. (a) What are the methods of packing, and the  
 materials used? .. ..

(b) What charges for packing (if any) made to  
 purchaser? .. ..

Sections of the Pottery Industry.

China	General Earthenware		Jet and Rockingham		Sanitary		Electrical Porcelain		Glazed and Floor Tiles	
	Markets	Value	Markets	Value	Markets	Value	Markets	Value	Markets	Value
<b>11. To what markets, and to what value are the undermentioned sold :</b>										
(a) Plate (approx. 9½" diam.) :										
		White								
		Printed								
		Lithographed								
(b) Covered Vegetable Dish (approx. capacity 52 oz.) :										
		White								
		Printed								
		Lithographed								
(c) Teacup and Saucer (approx. capacity 6-7½ oz.) :										
		White								
		Printed								
		Lithographed								
(d) (i.) Jug (approx. capacity 10 oz.) :										
		White								
		Printed								
		Lithographed								
(ii.) Jug (approx. capacity 30 oz.) :										
		White								
		Printed								
		Lithographed								
(e) Teapot (approx. capacity 30 oz.) :										
		White								
		Printed								
		Lithographed								
(f) Tile 6 x 6, White glazed										
		Coloured								
		Un glazed Floor Tiles								



(c) † 6 piece Toilet Set :

- |  |   |
|--|---|
| 1 ewer (approx. capacity 180 oz.) height 12" | { |
| 1 basin (approx. capacity 220 oz.) height 8" |   |
| 1 soap dish (uncovered)                      |   |
| 1 brush vase or open dish                    |   |
| 2 chambers (capacity 120 oz.) height 5½"     | { |
| diam. 8"                                     |   |
|  |   |
|  |   |

White .. ..  
 Printed .. ..  
 Lithographed .. ..

(See Note, page xiii.)

### General.

#### 12. General state of development of the Pottery Industry in Japan.

China .. ..	.. ..	.. ..	.. ..
General Earthenware .. ..	.. ..	.. ..	.. ..
Jet and Rockingham .. ..	.. ..	.. ..	.. ..
Sanitary .. ..	.. ..	.. ..	.. ..
Electrical Porcelain .. ..	.. ..	.. ..	.. ..
Glazed and Floor Tiles .. ..	.. ..	.. ..	.. ..

#### 13. To what extent, if any, are the Japanese exporting Pottery to China, Australia, or other markets?

.. ..	.. ..	.. ..	.. ..
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#### 14. Name and Address of principal Manufacturers, classified by section (China, General Earthenware, etc.)

.. ..	.. ..	.. ..	.. ..
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QUESTIONNAIRE--continued.

	Material	Cost	Source of Origin-
15. Cost delivered at factory, of the various materials used in all processes of manufacture, and sources of origin, including:	i. China Stone ii. Ball Clay iii. China Clay iv. Feldspar v. Lead vi. Flint		
16. (a) Cost of clay, mixed and prepared ready for the potter to use ? (b) To what extent do Manufacturers purchase clay ready for use ? (c) What is the average cost per 2240 lbs. when so purchased ?	.. .. .. .. .. ..		
17. What compensation is there for accidents ?			
18. To what extent do individuals working in the industry suffer from-- (a) Lead poisoning ? (b) Phthisis ? (c) Any other special diseases ? (d) And what compensation or insurance (if any), is payable ?	.. .. .. .. ..		
19. What Government Regulations are there governing the production of Pottery ?			

(See Note, page xiii.)

20. What Government Regulations are there relative to—						
a) Women	..	..	..	..	..	..
(b) Juvenile workers	..	..	..	..	..	..
21. In what processes in the various branches are the operations assisted by machinery, and where is such machinery generally obtained?	China	General Earthenware	Jet and Rockingham	Sanitary	Electrical Porcelain	Glazed and Floor Tiles
22. What power is used in connection with the machinery?						
Gas.						
Steam.						
Electricity						
23. What method is adopted for the transport of :—						
(a) Raw materials	..	..	..	..	..	..
(b) Finished output	..	..	..	..	..	..
24. What technical instruction is given in Japan ? Is instruction on any of the processes given in Technical Schools ? Is there a School of Pottery ? Are Scientific Chemists employed on any of the Factories ?						
25. What methods are adopted for automating media ? Are any of the systems (if any), available ?						



26. Is it possible to furnish a Table on the following lines, showing the proportionate cost of production ? .. .. .

**Total Manufacturing Cost (including Decoration) by specified items per £50 of net value of Product in all establishments and by individual establishments.**

Items	All Establishments	
	(Taking, say six Factories)	
Total Manufacturing Cost (including decorating)		
Materials ..	..	..
Labor, total ..	..	..
White-ware ..	..	..
Decorating ..	..	..
Kiln Fuel ..	..	..
Power, heat, and light ..	..	..
Office and general expenses ..	..	..
Fixed charges ..	..	..

**NOTE:**

\* Should any such Regulations exist can copies be forwarded ?

+ Catalogues, Price Lists, Patterns, and Actual Samples would be of material assistance wherever possible, especially sample of W.C. and Lavatory Basin.

No. 11.

*Copy letter from Mr. Lister Henry to H.M. Embassy  
at Tokyo.*

"[COPY.]

Enclosure to despatch 184 (B)  
of October 5th, 1920

Strong &amp; Co.

KOBE, 27 Septem., 1920

Sannomiya P.O. Box 4.

E. F. Crowe, Esq.,

H.M. Commercial Counsellor of Embassy,  
British Embassy, Tokyo.

Dear Mr. Crowe,

I note that you have not received the questions from England regarding the Porcelain industry here. I have already gone into the matter a little, and find that on to-day's cost of coal, though the relative cost of the coal to the cost of the finished article in Porcelain varies with the size of the kiln in which the article is fired—it is safe to quote an average of about 35% as being the proportionate cost of coal, labour about the same. The cost of saggers for an ordinary sized breakfast cup is two Sen for enough saggers to cover one breakfast cup, and these saggers can be fired on the average about seven times, so that taking to-day's cost of a White and Gold Cup-Saucer, the saggers work out at about two per cent of the cost of the finished article.

The Japanese reckon their costs in a different way to the English makers. For instance, an English maker charges the same price for Dinner Plates and Soup plates if the size over all of both articles is the same, while Japanese makers charge a higher price for the soup plates, their argument being that a soup plate takes more room in the kiln—being deeper.

I have not gone into the question of the cost of raw materials, but I should say that the majority of the manufacturers in Nagoya do not average more than eight to ten per cent profit, which would leave about 18% of the selling price to represent cost of clay. I shall be able to go into the question more thoroughly when I receive your list, and know exactly what the English enquiry is aiming at.

Yours sincerely,

(Sgd.) LISTER HENRY.\*

# Replies to Questionnaire on the Pottery Industry in Japan

received from His Majesty's Commercial Counsellor at Yokohama, (Sir E. T. F. Crowe, Kt., C.M.G.) and prepared by the Acting Commercial Secretary to His Majesty's Embassy at Tokio (Mr. G. B. Sansom) under date 1st June, 1921.

FOR reasons that will be apparent in the course of this report it is not possible to give satisfactory answers in the Form provided by the National Council of the Pottery Industry, and instead of inserting in that Form data which, standing alone, would be misleading, replies are given below to the various questions, in their order in the Questionnaire.

The distinction made in the Questionnaire between "China" and "General earthenware" is difficult to observe in dealing with Japanese ceramics. The Japanese distinguish between Earthenware, which corresponds to the English classification, and "porcelain." Intermediate between these two is the modern manufacture (confined to one or two firms) of what is called in Japan "Hard Earthenware," a generic term corresponding to "faience" or semi-porcelain but commercially applied to an "Ironstone China." Apart from this, there is very little export ware that would come under the heading "General Earthenware" in Japan, and the following account may be taken to refer to "China" (*i.e.*, Porcelain) exclusively unless otherwise specifically stated.

There is no manufacture of wares corresponding to Jet and Rockingham, unless certain fine art wares such as *Bankoyaki* can be included in this category. They are in any case produced only in small quantities, and not as commercial articles; and are therefore disregarded in this report.

Subject to the above qualifications, the following is an attempt to reply to the questions asked:—

## QUESTION I.

### *Number of Factories.*

The pottery industry in Japan is in a transition stage between home manufacture and quantity production in large factories. Without definition of the word factory it is not possible to answer this question, since a large part of the output is, in ware of all descriptions, produced, or handled at some stage, by individuals or families working in their own homes, and often using a community kiln.

If we take as a factory any place to which are applicable the provisions of the Japanese Factory Laws (*i.e.*, establishments employing 15 persons or more) the following figures may be regarded as substantially correct:—



Number of Factories .. .. .	291
Number of workers in above	
Male, .. .. .	11,813
Female, .. .. .	3,693
	15,506

If any house, workshop or factory in which a pottery process is carried on is regarded as a "Factory" then the following statistics may be regarded as substantially correct for 1920:—

Number of Factories or workshops .. .. .	7,000
Number of workers	
Male, .. .. .	36,000
Female, .. .. .	14,000
	50,000
Number of kilns:—	
Biscuit and glost .. .. .	2,500
Muffle kilns for painting, etc .. .. .	1,750
All others .. .. .	2,980

The figure for biscuit and glost kilns is the number of installations, and not the number of chambers. Many installations in the Japanese style comprise from six to eight units, and if the number of compartments is counted the figure would be about 12,000, not 2,500. The estimated value of the product is, according to official statistics, about 25,000,000.

#### QUESTION 2.

##### *Number of Workers.*

A rough estimate of the total number of persons engaged in the manufacture of pottery (including roof tiles—not taken into account above—which in Japan are of earthenware and not slate) is 75,000, of whom approximately one fourth are women. There is, however, no means of checking this figure, which is purely conjectural; for, as indicated above, there are at present to be found in Japan all stages, ranging from the production of simple wares by families working in their homes, to the manufacture of high class china and earthenware in large factories using the most modern plant and processes.

#### QUESTION 3.

##### *Commencing age of juvenile workers.*

When the period of compulsory education is finished (6 years) i.e., at 13 or 14, according to age at which the child entered school.

#### QUESTION 4.

##### *Hours worked per week.*

Though there are slight variations in different districts and different factories, the average may be taken as about 55 hours per week for men, women, girls and boys, exclusive of rest and meal periods. There is, however, no uniformity, as will be seen from the following actual examples:—

(i.) *Works at Arita* (Fukugawa, Koransha).

Adults .. 12 hours per diem, less  $1\frac{1}{2}$  hours meals and rest periods.

Children ..  $10\frac{1}{4}$  hours per diem, less  $1\frac{1}{2}$  hours meals and rest.  
With about 4 holidays per month.

(ii.) *Works at Kokura* (Toyo Toki Co).

This establishment aims at an 8-hour day, but the actual hours at present worked (1921) are:—

a.m. ..	7-30 to 12	..	..	$4\frac{1}{2}$ hours
p.m. ..	12-30 to 6	..	..	$5\frac{1}{2}$ ..
				—
				10 ..
Less 2 rest intervals of $\frac{1}{4}$ hour				.. $\frac{1}{2}$
				—
Net working hours				.. $9\frac{1}{2}$

which, at 6 days per week, gives an average of 57 hours per week. Overtime up to 3 hours is worked at "time and a half."

(iii.) *Works at Nagoya* (Nihon Toki).

Same as (ii.) above.

Japanese factory legislation sets no limit to the number of hours for which a workman may be consecutively employed except that children under 15 years, and women, may not work for more than 12 hours, (including rest and meals) in one day.

## QUESTION 5.

*What Holidays Obtain.*

The old-fashioned works in Japan do not close on Sunday but only on local and national holidays, festival days, etc., and on two fixed days a month, usually the 1st and the 15th. Modern factories usually close on Sundays and national holidays. The result in each case is about the same and corresponds in effect to the English custom of stopping on Sundays and Bank Holidays. There are in Japan however no long holidays in the summer, though most workpeople absent themselves for four or five days at the New Year.

## QUESTION 6.

*Types of Kilns.*

The kiln used by the old-style potters in Japan and in some of the smaller modern factories, is peculiar to this country. It consists of a set of units built on the slope of a hill. These kilns vary in size and other particulars, but the following description of one set may be regarded as typical in essentials.

Starting with a unit at the foot of a slope, further units are added as desired. This set has eight units, increasing in dimensions towards the

top of the slope. The top kiln measures about 35 ft. long, by 15 ft. wide and is 12 ft. high in the centre. The floors are as a rule covered with sand. When all the units are filled with ware, fire is started in the lowest kiln and, circulating inside the rounded roof, the heated air passes into the kiln above through apertures at the level of the floor of the second kiln. This process continues until all the kilns have been fired. As each kiln is heated to the required temperature, the firemen proceed to the kiln above, feeding fuel through apertures in its side. By the time the middle kilns are being fired the lower ones are cooling.

It is impossible to give standard figures of fuel consumption and firing time for these kilns, but the average firing time in a set like that described may be taken as 40 hours per unit, so that, with the 8 unit set, as much as 25 days, or even more, elapses between the first placing and the last drawing.

The fuel used is wood (as a rule, pine) in billets about 15 inches long and about as thick as a man's wrist. The cost of this wood is now excessively high, and the firing of the lower units of the above kilns would cost about £50 each, while the top unit might cost as much as £60 or £70.

(The writer was informed in 1920 by an English artist, who had in Tokio a private kiln for the production of art ware of his own designs, that he was paying more for pine wood as fuel than he had to pay in England during the war for oak).

#### *Modern type kilns.*

Though kilns as described above are in use at works which have in other respects fairly modern equipment, the most important pottery manufacturers have now adopted ovens of various types, as used in England, America and Germany. The following is an account of the kilns used at the works which may be regarded as the most advanced in Japan, upon which future works will certainly be modelled:—

##### *(i.) Oriental Ceramic Works, Kokura (Toyo Toki).*

*For Porcelain Firing* .. Double storey down draught kiln, 6 meter diameter; upper storey for biscuit, lower for glaze. Firm has nine of these kilns.

*For Earthenware* .. Up and down draught bottle shaped kilns, Muffle ovens, Down draught square ovens. Tunnel Oven—This is a Dressler Oven, 328 ft. long (60 hours). It was erected by the Dressler Oven Co. Stoke-on-Trent, under supervision of their representative Mr. Rushton. It is the only oven of its type in Japan and is operated at present only experimentally and not on a commercial basis.

##### *(ii.) Nihon Toki Works, Nagoya.*

This firm has 28 round, down draught, double deck kilns, of which the measurements are:—

Diameter	..	..	..	..	..	6 meters
Height to shoulder in lower chamber	..	..	..	..	..	4 meters
Height to shoulder in upper chamber	..	..	..	..	..	3 meters



(iii.) *Nagoya Seito Co.*

Single storey round kilns, 4 meter diameter, heights various.  
Single storey round kilns, 6 meter diameter,  $3\frac{1}{2}$  meter maximum height.

*Fuel.* In all kilns of the types mentioned above, except the purely Japanese style kilns, coal is used. The following are typical figures or amounts of coal used, and times taken in firing:—

(i.) *Oriental Ceramic.*

6 meter kiln as described:—

## a. Porcelain Firing, biscuit and glost. Temperature:—

Biscuit .. .. . 800C

Glost .. .. . 1380C

Time:—35 hours.

Fuel consumption:—17 tons.

## b. Earthenware. Biscuit.

Temperature:—

1200C

Time 65 hours.

Fuel consumption 20 tons.

## c. Earthenware, glost.

Temperature

1100—1200C

Time 45 hours.

Fuel consumption 12 tons.

(ii.) *Nihon Toki. Nagoya.*

6 meter kiln, firing time 38 hours, fuel 16 tons.

Total hours worked for one firing:—

Biscuit .. Placing & drawing .. 5 men, working  
total of 120 hours.

Glost .. Placing .. .. 6 men, working  
total of 130 hours.

Drawing .. .. 6 men, working  
total 150 hours.

Firemen .. .. 4 men, working  
total of 48 hours.

*Cost of fuel.*

Coal prices have fluctuated so much within the last six months, and have been as a rule so abnormally high, that it is impossible to state a standard figure. At present (March 1921) some makers are still using coal purchased on contract at rates current last year, costing then Yen 34 per ton (£3 9 5) in the Nagoya district. In new contracts the price would be about 25 yen (£2 11 0½) per ton in the same district, and 19 (£1 18 9½) to 20 yen (£2 0 10) in the Northern Kyushu districts which are near coalfields.

All manufacturers are complaining of the high cost of fuel at present, and affirm that they cannot make low enough quotations for export, almost entirely on this account.

With regard to wood fuel, its cost has so rapidly increased that its use is being gradually abandoned except by the potters producing almost exclusively art wares.

#### *Decorating Kilns.*

One or two of the largest modern factories use a tunnel oven for firing colours and gold on to the ware. In other factories a number of small muffle kilns are used.

In the works devoted principally to art wares, kilns of various shapes, but generally square brick ovens, fired with wood, are used. These are often so small as to admit only one or two large vases or a dozen or so of smaller articles.

### QUESTION 7.

#### *Wages.*

Although for the purposes of this report a large number of factories have been personally visited and information requested from all the important pottery establishments in Japan, it has been most difficult to obtain any satisfactory data on the question of wages. In the first place it was found that there is often no strict delimitation of functions among workers. It is only in the most modern factories that the lay-out is so designed as to give a satisfactory routing of product from one shop to another and in many works a man from one Department will be found lending a hand in another. Furnace hands will draw and place, a clay pugger will assist in mixing slip or breaking up saggers, and so on. Thus, although the questionnaire mentions some 60 occupations, the Japanese manufacturers have only about 20 classifications, and these are often not specifically named but only roughly described.

Two causes account for these conditions. In the first place, they are a relic of the old relations between master and workman, which partook of the nature of a family relationship; and in the second place the pottery workers have no guild or union which can negotiate with employers for a limitation of the amount and nature of work to be done by a given workman. Roughly speaking, therefore, there are only very small variations in wages, and these depend largely on the skill and length of service of the workman, irrespective of his actual occupation. Piece work is practically unknown within factories (though factories buy biscuit ware from outside workers) and contract work within a factory is unusual. At the present time, when orders are short and production is being kept down, one may say that there is no contracting. It has, therefore, not been possible to ascertain rates at which firms contract with employees on a basis of, say, so much per 1,000 plates or cups. When a firm has a large number of orders to execute, this contract system is sometimes adopted, but even then the basis of agreement is usually determined by the price of the article and not by any standard scale settled between employer and workman. In the export trade, particularly in the cheaper lines the buyer places with the maker an



order (for example) for so many cups and saucers which are to sell in the United States for 10 cents. The maker, subject of course to the buyer's approval of his sample, adjusts his costs for material and labour accordingly. It will be seen that this is the reverse of the process by which a maker submits to a prospective buyer samples of a standard product and then quotes a price based on an already settled cost of materials and labour.

With the exception, therefore, of highly skilled decorators, and certain turners, jiggermen, etc., on special jobs, the rate of wages may be regarded as a flat rate. As to the amount of this rate, it is not easy to furnish a precise figure; but the writer of this report, after examining a number of returns furnished by employers and checking them by conversations with foremen and other workmen, has come to the conclusion that the average earnings of an adult skilled labourer, such as a jiggerman or a presser, are not more than Yen 1.70 (3s. 6d.) per day of 10 hours, or 17 sen (4.1d.) per hour, exclusive of bonus which, in busy times might bring his earnings up to Y2.00 (4s. 1d.) per diem. Very few cases were noticed where a workman earned more than 2.50 (5s. 1½d.) per diem (exclusive of bonus) except in factories devoted to art ware production, where specially skilled men at the wheel, and decorative artists, may earn as much as four (8s. 2d.) or five yen (10s. 2½d.) per diem.

Nor does there appear to be any variation between wages paid in the various branches of the pottery industry,—no doubt because the number of people available is limited, and if the tile makers, for instance, offered less than the cup makers, labour would flow to the more remunerative channels.

Subject to the above qualifications the following tables of wages may be regarded as typical.

Rates are given in *Sen*. One Yen equals 100 *Sen*. The par value of the Yen is 2s.0½d., and though its exchange value is at present from 2s.4d. to 2s. 6d., for the purpose of this table a sen may be regarded as equal to one farthing. It should be added that some of the largest works supply their employes with rice and other staple foodstuffs at cost price.

*Wages—Table 1. (By Departments).*

Yield of time rate wages per hour at Nihon Toki Works, Nagoya. These are largest in Japan, employing over 3,000 people.

Occupation (By Dept.)	MALE		FEMALE		Average
	Highest	Lowest	Highest	Lowest	
Slip room ..	18.9	1.0	—	—	14.1 (3.5d.)
Casting ..	23.2	5.8	13.9	5.2	10.8 (2.7d.)
Jigging Dept. ..	21.5	6.6	—	—	11.4 (2.85d.)
Mould making ..	19.3	5.2	—	—	10.9 (2.72d.)
Kilns, Firemen ..	17.3	13.2	—	—	15.5 (3.87d.)
Other kiln jobs ..	20.6	08.8	9.5	7.7	14.6 (3.65d.)
Saggur making ..	18.8	9.9	—	—	14.7 (3.67d.)
Biscuit polishing ..	19.3	7.5	10.8	5.0	10.1 (2.52d.)
Biscuit inspection ..	18.2	5.3	13.2	7.3	11.4 (2.85d.)
Lithographing (decalc.) ..	19.3	5.3	12.7	5.0	7.7 (1.92d.)
Tinting & gilding ..	19.2	5.0	9.4	5.0	8.6 (2.15d.)



The wages in the foregoing table represent the yield per hour of day rates. The day rate may be obtained by multiplying the figure in each case by 9½. Thus the highest paid jiggerman would receive 9½ × 21.5 sen per diem, i.e., Yen 2.04 or about 4s. 1d. at par exchange.

Bonus payments are made in addition to the above, calculated on the following scale:—A standard output is fixed for each article for the standard hours of work at the standard wage. A price per unit of output is thus obtained, and for any output in excess of standard, provided it passes inspection, the worker is paid at the rate of one third the unit price. The bonus is calculated on one month's work and is paid monthly.

*Wages. Table 2.*

Average wages of adults, exclusive of bonus, at Oriental Ceramic Works at Kokura, North Kyushu. These works are controlled by the same interests as the Nihon Toki Works, but are of more recent establishment.

*For daily rate, multiply by 10.*

Occupation						Average per hour	
						in Sen	in pence
Jiggermen	..	..	..	..	..	15.5	3.71
Dishmakers	..	..	..	..	..	16.7	4.09
Casters	..	..	..	..	..	15.3	3.74
Placers, biscuit and glost	..	..	..	..	..	17.9	4.38
Dippers	..	..	..	..	..	15.9	3.89
Mould makers	..	..	..	..	..	14.3	3.50
Firemen, biscuit and glost	..	..	..	..	..	18.5	4.53
Placers and drawers, decorating	..	..	..	..	..	16.7	4.09
Firemen, decorating	..	..	..	..	..	16.7	4.09
Saggur makers	..	..	..	..	..	16.7	4.09
Clay puggers, slip makers	..	..	..	..	..	14.4	3.52
Mould runners, clay carriers	..	..	..	..	..	14.4	3.52
Glaze makers	..	..	..	..	..	15.6	3.82
Dippers' helpers, saggur makers' helpers	..	..	..	..	..	14.4	3.52
Boiler firemen	..	..	..	..	..	17.3	4.23
Selecters	..	..	..	..	..	15.0	3.67
Ware brushers	..	..	..	..	..	15.5	3.79
Wrappers	..	..	..	..	..	13.8	3.38

The manager of these works states that, though these are current rates, they are lower than they would otherwise be because the works are situated in a district where pottery manufacture is a new thing, and where the standard of skill is low.

Consequently, as a nucleus of skilled workers is formed within the next year or two, the rates above given will be subject to an increase of some 30 per cent in the case of efficient workmen.

At these works bonus is paid for work in excess of a standard output. There is also a Fidelity Bonus System, by which at the end of each year bonus is allotted to all employees on the following scale:—

For 1 to 2 year's service	3% of year's wages
„ 2 to 3 „	3.5% „
„ 3 to 4 „	4.0% „
„ 4 to 5 „	4.5% „
„ 5 years and over	5.0% „

These amounts are subject to increase or decrease at the discretion of the management, according to the amount and quality of the work in each case. The bonus is not handed to the employee but placed on deposit at interest and is only payable at the end of 3 year's employment.

*Wages. Table 3.*

The following figures represent the average monthly earnings of adult employees, inclusive of bonus and overtime, and are obtained by dividing the total wages bill for a half year by the number of employees during the period. They are for the largest works in the Kanazawa district, which produces a medium grade "Ironstone China," and until recently, sanitary ware.

YEN PER MONTH.				
1917			1918	
	1st half-year	2nd half-year	1st half-year	2nd half-year
Male ..	10.91 (£1 : 2 : 3)	13.11 (£1 : 6 : 9)	14.82 (£1 : 10 : 3)	19.09 (£1 : 18 : 11½)
Female	6.45 (13 : 2)	6.96 (14 : 3½)	7.95 (16 : 2½)	10.04 (£1 : 0 : 6)
Average	10.40 (£1 : 1 : 2½)	12.23 (£1 : 4 : 11½)	13.58 (£1 : 7 : 8½)	17.49 (£1 : 15 : 8½)
1919			1920	
	1st half-year	2nd half-year	1st half-year	2nd half-year
Male ..	19.98 (£2 : 0 : 9½)	24.43 (£2 : 9 : 10½)	33.19 (£3 : 7 : 9)	28.18 (£2 : 17 : 6½)
Female	10.37 (£1 : 1 : 2)	12.84 (£1 : 6 : 2½)	16.68 (£1 : 14 : 0½)	15.56 (£1 : 11 : 9)
Average	18.27 (£1 : 17 : 3½)	24.38 (£2 : 9 : 9)	30.75 (£3 : 2 : 9)	26.27 (£2 : 13 : 7½)

These figures show that wages were practically trebled by 1920 as compared with pre war rates. In 1921 there was a decrease of rates of wages of somewhat less than 10% on previous years' rates, and, owing to slackness in the industry, a decrease of about 20% in actual earnings of each individual.

## WAGES—TABLE 5.

The Nagoya Seito Works has various systems of payment, as it stands half way between the old style potteries and the most modern factories. It contracts out to families for the simpler articles like cups, saucers, insulators, has some contracts within the works, and also a time-rate system. An attempt was made to work out statistics of these various rates, but the types of machinery and kilns in use were so various and the firms accounting methods so poor that this was not practicable.

The only result that could be obtained was :

Yield per hour of highest rates, time or piece	20 sen (4 9d.)
Ditto do. lowest rates	05 sen (1 2½d.)

## WAGES—TABLE 6.

Average earnings per diem of employees in pottery industry, exclusive of bonus, overtime, etc. Figures furnished by Labour Bureau of Ministry of Commerce.

	Children (under 15)	Adult Females	Adult Males
	Yen	Yen	Yen
1916	193 (4 72d.)	255 (6 24d.)	580 (1s. 2 21d.)
1917	246 (6 02d.)	310 (7 59d.)	700 (1s. 5 13d.)
1918	347 (8 50d.)	446 (10 92d.)	936 (1s. 10 93d.)
1919	488 (11 95d.)	750 (1s. 6 37d.)	1 510 (3s. 0 99d.)

## QUESTION 8

## PRICES OF WARE (SEE ALSO SAMPLES AND PRICE LIST)

The prices given immediately below are those supplied by a British firm which has a branch in the chief pottery district at Nagoya, and is in close touch with the makers of export goods, from whom it purchases for export to the Australian, South African and other markets. The prices are for China :—

	Sen At Factory	Per pc. F.O.B.
<i>Plate, approximately 9½" diam.</i>		
White .. ..	20 (4 9d.)	23 (5 6d.)
Printed .. ..	28 (6 8d.)	32 (7 8d.)
Lithographed ..	27 (6 6d.)	32 (7 8d.)
<i>Covered Vegetable Dish— approximate capacity 52 oz.</i>		
White .. ..	50 (12 2d.)	59 (14 4d.)
Printed .. ..	78 (19 1d.)	90 (22 03d.)
Lithographed ..	75 (18 3d.)	86 (21 07d.)
<i>Teacup and Saucer.</i>		
White .. ..	6 (1 4d.) to 10 (2 4d.)	7½ (1 8d.) to 12 (2 9d.)
Printed .. ..	10 (2 4d.) to 14 (3 4d.)	12 (2 9d.) to 17 (4 1d.)
Lithographed ..	9 (2 2d.) to 13 (3 1d.)	11 (2 6d.) to 15 (3 6d.)



*Jug, about 10 oz.*

White ..	8 (1·9d.) to 10 (2·4d.)	9½ (2·3d.) to 12 (2·9d.)
Printed ..	18 (4·4d.)	22 (5·3d.)
Lithographed ..	10 (2·4d.)	12 (2·9d.)

*about 30 oz.*

White ..	17 (4·1d.)	20 (4·9d.)
Printed ..	26 (6·3d.)	32 (7·8d.)
Lithographed ..	25 (6·1d.)	31 (7·5d.)

*Teapot, 30 oz.*

White ..	25 (6·1d.)	30 (7·3d.)
Printed ..	38 (9·3d.)	44 (10·7d.)
Lithographed ..	33 (8·08d.)	40 (9·8d.)

*Glazed tiles, 6 × 6.*

White ..	15 (3·6d.)	18 (4·4d.)
Coloured ..	18 (4·4d.)	22 (5·3d.)
Tiles, floor, unglazed	33 (8·08d.)	44 (10·7d.)
Toilet set, 5 pieces	y 5·95 (12s. 1·7d.)	y 6·98 (14s. 3d.)

with case.

The following prices have been derived from other sources and may be useful for purposes of comparison.

(1). Prices of goods produced by the Nihon Toki Works. These are the highest grade of export goods made in Japan. The system of inspection is rigid, and only firsts are exported by the firm in their own name, and to their own agents abroad. (For further particulars of the firm, v. answer to Question 14 below).

## PRICES IN YEN.

Article	White Body	"Blue * White"	Decalcomania Pattern
1 doz. dinner plates, 10" ..	2·94 (6s. 0d.)	4·26 (8s. 8·3d.)	5·04 (10s. 3·4d.)
Teapot, 1 .. .. .	·48 (11·76d.)	·59 (1s. 2·4d.)	·69 (1s. 4·9d.)
<i>Tea set</i> : Sugar bowl and cream jug, 1 each ..	·45 (11·02d.)	·59 (1s. 2·4d.)	·69 (1s. 4·9d.)
Cup and Saucer, 6 ..	·75 (1s. 6·3d.)	1·14 (2s. 3·9d.)	1·47 (3s. 0d.)

\* i.e., with blue line.

(2). Prices at Factory, Oriental Ceramic Works, Kokura, North Kyushu.

Dinner plates, about 10 inch, medium quality body, *per doz.*

White ..	3·16 (6s. 5·4d.)
Painted ..	7·20 (14s. 8·4d.)
Lithographed ..	6·72 (13s. 8·6d.)

Teacup and saucer, *per doz.*

White ..	1·56 (3s. 2·2d.)
Painted ..	4·68 (9s. 6·6d.)
Lithographed ..	4·20 (8s. 6·9d.)

(3). Prices at Nagoya (any factory but Nihon Toki and Matsumura Iron Stone Works) of cheapest lines of export goods.

	Yen.	Yen.
Teapot, Sugar bowl and "creamer"	45 (11d.)	65 (1s. 3-9d.)
$\frac{1}{2}$ doz. cups and saucers. . .	40 (9-8d.)	60 (1s. 2-7d.)
Price of set, plain white . .	85 (1s. 8-8d.)	1-25 (2s. 6-6d.)
Ditto lithographed . .	1-50 (3s. 0-7d.)	2-00 (4s. 1d.)

A plate of 9 inches or more costs about 10% more than a cup and saucer. It appears that plate makers are less experienced than cup makers, and there is a greater proportion of seconds, thirds and rejects in plates.

As already stated, the conditions of the export trade are such that, as a rule, cups and saucers are made so as to sell at a fixed price in the country of destination, and consequently, any adjustment made is rather in the quality of the article than in the price. Thus for the American market there is a demand for a cup and saucer to sell at ten cents, gold (in such emporia as Woolworth's 10 cent. (5d.) stores). To insure profit to the various dealers, this must be sold by the factory at well below 10 sen (2-4d.) (i.e., 5 cents, gold), and if costs of production rise then quality falls.

For further information as to prices, the samples\* accompanying this report and the accompanying price list should be inspected.

*Prices of sanitary ware.* During the war there was a small export of sanitary ware to South Africa, Java, etc. This has now ceased. Two or three factories are equipped for the production of water closets, bidets, lavatory basins, etc., etc., but when visited in March and April of 1921, had all ceased to manufacture these goods. The Manager of the Oriental Ceramic Works stated that they could not produce them on an economic basis, partly because the demand was small and partly because, the demand being small, the staff of the factory could not gain the necessary experience and the percentage of failures was consequently very high. It must be remembered with regard to sanitary ware and toilet sets that there is practically no domestic demand, since Japanese towns have no system of sewage, and Japanese washing arrangements are unlike ours.

*Prices of Tiles and Toilet Sets.* See samples and Price Lists.

#### QUESTION 9—DINNER SETS.

The larger factories make complete dinner sets for export. The composition of the set varies with the country of destination. Thus, for the American trade, the set is composed of 100 pieces, including tea cups, etc., as follows:—

			Pieces.
Teacups and Saucers . . . .	..	..	24
Sauce dish . . . . .	..	..	12
Soup Plates . . . . .	..	..	12

\*A case of sample ware was forwarded for inspection by members of the National Council and others interested. So far as the quality was concerned, it was considered that it did not reach the British standard. The prices were however very competitive. The method of packing was unique, but was considered to be far too elaborate for practical purposes as much more room would be taken up in the packages.



	Pieces.
Meat plates.. .. .	12
Dessert Plates .. .. .	12
Cheese Plates .. .. .	12
Pickle Dish .. .. .	1
Salad Bowl .. .. .	1
Round Vegetable Dish .. .. .	2
Oval Vegetable Dish .. .. .	2
Sauce Boats .. .. .	2
Oval Service Dish .. .. .	2
Covered Butter Dish.. .. .	3
Sugar and Creamer .. .. .	3

100

The composition of all these sets is determined by the requirements of foreign merchants since there is not in Japan a demand for services for European style meals large enough to warrant the manufacture of standard sets for home trade.

#### QUESTION 10—METHODS OF PACKING.

Goods are wrapped (sometimes first in paper and then) in rice straw and packed in wooden cases stuffed with the same material. Exporters state that the system is unsatisfactory, not so much on account of breakages, but because it requires greater space. A case containing 36 dozen heavy breakfast cups and saucers packed in this manner measures 14 cubic feet. Exporters find that it is unsafe to use cases larger than 18 cubic feet for light goods, 16 cubic feet for heavy ware. In the latter case, partitions are required. It is estimated that for the same amount of ware the Japanese method requires 30% more space than the English method of packing in barrels.

The largest exporting firm, however, (Morimura Brothers, who control the two largest factories, the Nihon Toki and the Toyo Toki), pack their goods in cardboard boxes filled with fine wood shavings. These cardboard boxes are then placed in a large case, lined with layers of straw matting. It is understood that the loss through breakage in the case of this firm's exports is practically *nil*.

Most quotations made by factories to buyers in Japan, whether for home consumption or for export, include packing. The cost of packing in boxes for export is usually reckoned at 32 sen (7-8d.) per cubic foot.

#### QUESTION 11.

No classified statistics of the export of pottery are available, and it is therefore not possible to give the amounts and values required in reply to this question. In default of this, the following general account of the export trade may be of interest.

In the first place, it must be remembered that the tableware, the toilet wares and the sanitary wares required for domestic use by the Japanese themselves are of an entirely different nature from those exported. There is no demand *in* Japan for dinner services, tea-sets, washbasins, jugs, water closets, etc., except for hotels and similar establishments run on European lines, or for ships. Consequently, the manufacture for the export trade is a thing apart and manufacturers for



export make goods not in accordance with their own standards, but to meet orders. Nor do manufacturers quote and sell direct (for exception see reply to Question 14) for the entire export business is done by shippers. This business is handled in three ways in the largest porcelain centre, Nagoya.

A great deal of porcelain is made by small makers, who have neither packing, shipping or selling facilities and who often, in addition to their own output, "let out" work to families in the surrounding district. These families work at home, and frequently the biscuit firing of the ware they produce is done in a community kiln; or sometimes a factory will send out biscuit ware for decoration.

Porcelain dealers place orders with these factories, and as the factories are small, a large order often must be divided among several factories. The dealers in turn sell to Commission houses, who ship to customers abroad. The result is that goods often pass from house to factory, from factory to dealer, from dealer to shipper and from shipper to overseas purchaser—and the natural corollary of this method is increased cost and irregular quality. The latter is a constant subject of complaint by foreign buyers.

With regard to the export trade, it should be made clear that it must be divided into two categories. In the first category fall all the wares which may be described as indigenous products, such as the Bishu "egg shell" porcelain, the Kutani and Arita ware bearing characteristic Japanese decoration and similar articles which may be comprehensively described as curios, though among them the tea cups and saucers are for practical use. It is obvious that there is no question of competition with British goods so far as these wares are concerned, since they are purchased because they are Japanese.

In the second category fall the goods which compete with goods of the same type manufactured in other countries, and are not specifically Japanese. These comprise:—

In the United States Trade	..	China dinner ware. Heavy hotel cups and saucers (white, gold band). Cheap teacups and saucers and teasetts.
In the Indian Trade	..	Cheapest heavy plates and cups and saucers. These compete with the United Kingdom.
In the Australian Trade	..	Jugs, cups and saucers and good quality dinner ware (plates and sets.)
In the South African Trade, Java and Dutch Indies	..	Small heavy cups and saucers.

In addition to the above, there was during the war a small export of toilet sets, but this appears to have fallen off. The trade in electrical insulators, etc., though it flourished during the war, appears to be reduced to a slight export to South Africa, Australia and to places in the Far East where the Japanese goods have the advantage of small freights.

The following table, compiled from Customs Returns, shows exports of "Pottery" during the years 1918-21. This includes all porcelain and earthenware articles of whatever description.

## EXPORTS OF POTTERY.

<i>Destination.</i>	YEN (= 2s. 0½d. AT PAR).			
	1921.	1920.	1919.	1918.
China ..	1,325,503	2,073,798	2,854,242	2,106,171
Kwantung ..	964,016	1,044,273	1,281,897	1,114,350
Hong Kong ..	542,846	380,473	679,009	904,401
British India ..	832,923	1,978,381	2,261,994	1,816,265
Straits Settlements	338,024	1,116,154	1,127,672	801,648
Dutch Indies	3,776,009	3,297,707	1,797,265	2,517,912
Philippine Islands	304,261	825,999	545,554	787,590
United States ..	8,544,705	9,450,473	6,055,512	4,458,935
Canada ..	1,250,749	917,611	780,452	508,396
United Kingdom	547,270	1,462,395	808,441	121,353
South America	300,660	1,996,453	1,170,395	786,457
Africa ..	146,957	1,421,967	441,954	528,066
Australia ..	938,362	2,995,045	1,486,212	2,823,502
New Zealand ..	49,655	303,262	208,570	276,475
Other countries	929,965	2,188,261	1,130,606	406,261
Total ..	20,791,905	31,452,252	22,629,775	19,957,782
	(£2,122,506 19s. 4½d.)	(£3,210,750 14s. 6d.)	(£2,310,122 17s. 3½d.)	(£2,037,356 18s. 3d.)
				(£677,561 9s. 3½d.)



The annexed tables, which are composed of typical extracts from invoices passing through the hands of His Majesty's Consulates may serve to give a more precise idea of the nature of the export trade in porcelain.

### QUESTION 12.

#### STATE OF DEVELOPMENT OF POTTERY INDUSTRY IN JAPAN.

In discussing this question it must be borne in mind that the Japanese pottery industry dates back to 1514, and has reached a high stage of development in the production of art wares and of wares for domestic use in Japan. In addition to this industry, however, there has developed in recent years a considerable manufacture of goods for export, consisting of—

Table ware,  
Electrical porcelain,  
Tiles, and to a small extent, of  
Toilet ware,  
Sanitary ware.

In the first stages, this manufacture for export was carried on by the firms which had hitherto devoted themselves to the production of ornamental goods. They had for some time manufactured for export a class of wares, principally tea sets and vases with characteristic Japanese decorations, which can be described as forming part of the curio trade. Later they undertook the production of the same objects, but of a practical rather than a decorative nature. Their works were, however, in most cases old-fashioned, and their methods not suited to production in quantities, and it was found that they could not as a rule compete with foreign goods in foreign markets unless they were favoured by such conditions as low freights, etc., or unless their product was distinguished from other wares by incidental features like patterns and colours, i.e., unless it was characteristically Japanese. In other words, quality for quality, they could not compete. During the war, however, conditions were naturally in favour of the Japanese makers, and the export trade increased considerably in all lines. With the change in conditions after the war since all costs increased heavily, they reverted to a condition, relative to foreign markets, certainly not more favourable than before the war. Generally speaking, therefore, it may be stated that, with their present equipment and methods, Japanese potteries cannot hope to compete in foreign markets except in the curio trade, or where they have incidental advantages of position. There is, however, one important exception to this statement. Certain Japanese business men, even before the war, had realised that the existing methods were not economical and that if any export trade was to be developed, it must be through factories of modern design, with modern plant, and producing in large quantities. Consequently, within the last 10 years or so, there have been formed a number of companies on these lines. They are, of course, not all of the same degree of efficiency. Those controlled by Messrs. Morimura Brothers, namely the Nihon Toki Works at Nagoya, and the Toyo Toki Works at Kokura, are model factories. The former employs over 3,000 men, and is in many respects one of the largest in the world. Its products are exported direct without the intervention of buyers.



shippers, etc., to Messrs. Morimura's branches in foreign countries. This, of course, represents the best in the Japanese manufacture of pottery for export. The controlling interests have plenty of capital at their disposal, and are prepared to stand losses to gain eventual trade. To what extent they can in future compete with European and American producers is a debatable point. They have in their favour relatively low (but gradually increasing) wages; supplies of raw materials favourably located, though not always of high quality; and propinquity to important markets. To set against this, though in art wares the skilled Japanese workman is of probably unrivalled dexterity, in factory production the average of efficiency is admittedly less than in Europe and America. The Manager of the Toyo Toki Works, who has long experience abroad, states that taken over all branches, if both quality and quantity of work are considered, the average efficiency of European and Japanese workmen in this industry is in the ratio 3 to 2. A further handicap from which the Japanese pottery industry suffers is poor transport. Even at the large Morimura Works, one is struck by the extent to which hand labour is used. All heavy materials, such as stones, clays, flint, wood, coal, etc., are brought into the Works on small one-horse carts. They are piled on the cart in shallow baskets, and the material is carried into and about the works by men bearing one basket at a time. Hand labour, too, is largely employed in breaking up and sorting materials. In some of the smaller works men can even be seen treading clay. Even where decorative processes are carried on largely by mechanical processes, there is a considerable proportion of tinting, waving, etc., performed by hand, and in one pottery factory young girls were observed piercing holes *singly* by means of a needle in salt and pepper pots.

The Morimura concern, and a few others represent the most highly developed in the modern export pottery industry. After these come various gradations, down to the small potter, working in his home with the assistance of his family, using often a community kiln and selling ware on contract to local factories for glazing and decoration. It is only when processes are very simple and labour very cheap that this method can be commercially successful, and the household manufacture in, for instance, the Seto district already shows signs of breaking up under the pressure of increased costs, while the workers tend to be absorbed by the factories which have been erected in the neighbourhood.

The foregoing represents in a general way the situation as to the Pottery Industry as a whole. The following are the special features of certain branches.

*Sanitary Ware.* There is no system of sewage, flush closets, etc., in Japanese towns, and the demand in Japan for sanitary ware is confined to a small quantity of W.C's., lavatory basins, etc., for use in hotels, ships and institutions. This is not sufficient to justify any large scale production, and the factories which have hitherto made these articles have for the most part suspended or ceased their production. They cannot produce them economically, having not sufficient experience, and suffering heavy losses in firing. It seems highly improbable that any export trade in this line will develop until a domestic demand is created. The present domestic requirement is satisfied by urinal

basins and wash basins of a very simple pattern, suited to Japanese habits.

*Electrical Goods.* The requirement in the home market is, of course, similar to that for export. The domestic requirement is in fact very large since hydro-electric enterprise is wide spread in Japan. Until recently, insulators, switches, cleats, ceiling rosettes, knobs, etc., have been exported in fair quantities principally to China, Australia and South Africa. This export trade has considerably diminished since the end of 1920. The reasons for this falling off are not quite clear, but though it is in part due to the general slump in exports, it is probably also to be explained by the fact that, as manufacturing conditions improved in European countries after the war, the Japanese were less able to compete in this line.

A great proportion of the manufacture of electrical porcelain is carried on, especially in the simpler and smaller shapes, by household industry, and in some cases small independent potters have been able to undercut the insulator factories because they have practically no overhead expenses.

*Laboratory Porcelain.* Crucibles, etc., of good quality are produced, but the manufacture is yet in its experimental stage, and standard prices are not yet fixed. Crucibles and evaporating dishes made by the Shofu Industrial Company of Kyoto are exported to England.

Satisfactory classified statistics of output are not available. The following figures are reproduced from a statistical Report of the Japanese Department of Commerce :

Value of earthenware and porcelain produced in Japan.

	Total 1000 Yen	Household Utensils and Ornaments	Kitchen and Table Ware	Industrial Goods	Toys	Other
1913	17,676 (£1,804,425)					
1914	15,656 (£1,598,217)					
1915	17,532 (£1,789,725)	3780	9531	1695	880	1643
1916	25,220 (£2,574,542)	4826	14115	2566	1414	2297
1917	29,338 (£2,994,921)	5613	16909	3184	1430	2200
1918	44,214 (£4,513,513)	7589	28980	2848	2253	2541
1919	64,660 (£6,600,708)	8438	41763			
					14450	

The following table shows the proportion of export to total production

	Production. 1,000 yen.	Export. 1,000 yen.
1913	17,676 (£1,804,425)	6,637 (£677,527)
1914	15,656 (£1,598,217)	5,913 (£603,619)
1915	17,532 (£1,789,725)	6,952 (£709,683)
1916	25,220 (£2,574,542)	12,103 (£1,235,515)
1917	29,338 (£2,994,921)	14,473 (£1,477,432)
1918	44,214 (£4,513,513)	19,957 (£2,037,277)
1919	64,660 (£6,600,708)	—



## QUESTION 13—EXPORTS (See above).

## QUESTION 14.

Names and addresses of manufacturers:—

*China.*

Nippon Tōki Company (Japan Ceramic Company) of Nagoya (vide pamphlet for details).

Tōyō Tōki Company (Oriental Ceramic Works), near Kokura Kyushu, Japan.

(These firms are represented in New York, Sydney and Montreal by Morimura Brothers).

Matsumura Kōshitsu Tōki Company (Matsumura Ironstone China Company) Chikusa, near Nagoya.

Nagoya Seitōsho Limited, Higashi-ku, Nagoya.

Matsukaze (Shōfū) Kogyo Company, Higashi-ku, Nagoya.

The Kōransha (Messrs. Fukugawa), Arita, Japan.

The Tei koku Yōgyō Company (Imperial Pottery Co.) Arita, Japan.

Nippon Kōshitsu Tōki Company (Japan "Ironstone China") Kanazawa, Ishikawa Prefecture.

Komatsu Seitō-sho (Komatsu Pottery Works), Komatsu, near Kanazawa.

Kinkozan Shoten, Awata, Saujō, Kyoto.

*Sanitary Ware.*

Komatsu Seito-sho, Komatsu, near Kanazawa, Ishikawa Prefecture.

Takashima Seito-sho, Oiwake, Seto, Aichi Prefecture.

Toyo Toki Company (Oriental Ceramic Company), near Kokura, Fukuoka Prefecture, Kyushu.

*Insulators and other Electrical Goods.*

The Kōransha, Arita, Kyushu.

The Matsukaze Kogyo (Shofu) Company, (make h.t. insulators up to 200,000 volts),

Higashi-ku, Nagoya, and Works at  
Ninohashi, Honmadudori, Kyoto.

*Tiles.*

Fujimiyaki Tile Works, Nagoya, Japan.

Saji Haruzo Shoten, Nagoya.

## QUESTION 15—COST OF MATERIALS.

Most of the material is obtained in Japan. There are clays available in Korea, but though these are sometimes imported, they are not considered economical, and generally speaking, the Japanese pottery industry



may be regarded as self supporting in regard to all important materials. Kaolins and clays of varying composition are found in the districts of Kyoto, Seto (Nagoya), Arita and Kutani. Analyses of some of these clays are appended.

There is also found in the Arita district a "porcelain stone" which can be made into ware without the admixture of clays or kaolins. It is, however, not sufficiently uniform in composition to allow of this being done on a commercial scale, though it is freely used with kaolin and felspar to produce a stable body, without admixture of flint or quartz, because of its free silica content. The best stone of this sort comes from an island called Amakusa, and a great part of the Amakusa Stone is owned by the Nihon Toki Works of Nagoya, which have a steamer to bring it from their own quarries to the Nagoya works. Its analysis is appended. The price of clays varies considerably according to district, because in Japan cost of transport is a considerable factor. In Arita, the local clays are community-owned, and are free to potters in Arita, so long as they are used in the district and not sold outside.

The following prices were actually paid in 1921 by two firms—

*Prices at Kokura, laid down at Works.*

				Yen per ton.
Amakusa Stone (Liparite), aired	..	..	..	38.00 (£3 18s. 9.7d.)
Flint	..	..	..	16.90 (£1 14s. 6d.)
Feldspar	..	..	..	19.00 (£1 18s. 9.5d.)
Kaolin, washed	..	..	..	54.35 (£5 10s. 11.5d.)
Limestone	..	..	..	32.17 (£3 5s. 8.1d.)
Dolomite	..	..	..	10.70 (£1 1s. 10.1d.)

*Prices of clays at Nagoya, 1921, laid down at Works.*

				Yen per ton.
Amakusa Stone	..	..	..	46.00 (£4 13s. 11d.)
Flint	..	..	..	19.00 (£1 18s. 9.5d.)
Feldspar	..	..	..	19.00 (£1 18s. 9.5d.)
Kaolin	..	..	..	55.00 (£5 12s. 3.5)
"Marble clay"	..	..	..	60.00 (£6 2s. 6d.)
Dolomite	..	..	..	11.00 (£1 2s. 5.5d.)
Lead	..	..	..	3,500.00 (£357 5s. 10d.)

*Feldspar* of good quality is found in Japan.

*Saggars* clays are found locally, but are according to expert opinion, not of high quality, being deficient in plasticity and giving a high percentage of breakage or cracking in firing, estimated by one authority at 40%.

*Plaster of Paris* is manufactured locally, but that required for the best work is imported from the United States. The price in 1920 was 19 yen (£1 - 18 - 9½) per barrel of 224 lbs. of the imported material.

Decorating materials and colours, were before the war mainly imported from Germany. Now they come from England. Endeavours

are being made to produce pigments in Japan (in addition, of course, to the characteristic colours used in Japanese art wares) and the most modern potteries in Japan make, or have made, their own decalcomania sheets, using paper imported from the United Kingdom.

#### QUESTION 16—COST OF CLAY READY FOR USE.

(a) The cost of clay mixed and ready for use by the potter is difficult to state precisely, because in Japan the cost of transport is a large item, and the price of prepared clay varies considerably according to the location of the Works. (In Arita, for instance, which is the nearest pottery district to the deposits of Amakusa stone and other useful materials, road and rail facilities are so bad that the cost of transport for 15 miles is about 6 yen (12s. 3d.) per ton. Yen 35.00 (£3 - 11 - 5½) per ton of 2,240 lbs. may be regarded as an *average* price for clay ready to use.

(b) Few manufacturers at present purchase clay ready for use, but there is a tendency among the large makers to put their clay making branches on an independent footing, and the demand for clay ready for use appears to be increasing. It is stated that 30% of all factories now use clay ready for use, but this figure is misleading, because "factories" here includes a large number of establishments and families which are really only piece workers on a large scale, obtaining their clay from the larger works with whom they contract. It is difficult to give an average figure. Prices range from 30 (£3 1s. 3d.) to 75 yen (£7 13s. 1½d.) per ton, according to the nature of the ware which is to be made, but the figure mentioned above, yen 35 (£3 11s. 5½d.) may perhaps be regarded as correct for all but the very finest compositions.

#### *Notes on Japanese Porcelain Stones and Clays.*

1. Arita Stone is of Volcanic origin. It is found in various stages of decomposition in quarries extending over a range of about one mile near the small town of Arita in Kyushu. There are three principal varieties:—

- (a) Greyish white, almost pure kaolin.
- (b) Bluish (from conglomerate rock) which is rich in quartz.
- (c) Yellow, containing iron.

The following are typical analyses:—

				Arita Stone.		Arita Stone.
				I.		II.
Silicic Acid ..	..	..	77.35	..	..	83.00
Alumina ..	..	..	14.27	..	..	14.27
Ferric Oxide ..	..	..	2.11	..	..	0.70
Mang. Oxide ..	..	..	trace	..	..	trace
Lime ..	..	..	0.15	..	..	0.18
Magnesia ..	..	..	0.29	..	..	trace
Potash ..	..	..	1.78	..	..	1.90
Sodium ..	..	..	0.32	..	..	0.09
Water ..	..	..	2.76	..	..	2.49



*Arita Kaolin* which is found in association with *Arita Stone*, and is no doubt a developed form of it, contains the following elements—

Silicic Acid	..	..	..	..	49.25
Alumina ..	..	..	..	..	38.89
Ferric Oxide	..	..	..	..	1.14
Lime ..	..	..	..	..	0.15
Magnesia	..	..	..	..	0.36
Potash ..	..	..	..	..	2.01
Sodium Oxide	..	..	..	..	0.39
Water ..	..	..	..	..	5.90

It will be seen that this clay is similar to the Cornish Kaolin from St. Austell.

II. *Amakusa Stone* is a Volcanic rock, found in a group of islands in Kyushu. It is similar to *Arita stone*, but harder and heavier.

Silicic Acid	..	..	..	..	73.87
Alumina ..	..	..	..	..	15.25
Ferric Oxide	..	..	..	..	0.73
Lime ..	..	..	..	..	0.43
Potash ..	..	..	..	..	5.46
Sodium Oxide	..	..	..	..	1.07
Water ..	..	..	..	..	2.23

III. The *Seto porcelain* materials consist of granitic rocks in all stages of decomposition, and granite and kaolin rich in quartz grains form the basis of the ceramics in this district. The granite felspar, locally called the "*Chief Stone*" is formed of—

Silicic Acid	..	..	..	..	65.78
Alumina ..	..	..	..	..	20.22
Iron Oxide	..	..	..	..	0.43
Lime ..	..	..	..	..	0.77
Potash ..	..	..	..	..	10.33
Soda ..	..	..	..	..	1.34
Water ..	..	..	..	..	0.51

and is said to resemble Norwegian felspar. The *Seto clay* is similar to the *Arita clay*, but contains more silica. The felspar is completely decomposed, but quartz grains remain in their original state.

( QUESTION - 17—COMPENSATION FOR ACCIDENTS.

( QUESTIONS 19-20—GOVERNMENT REGULATIONS GOVERNING  
POTTERY PRODUCTION, ETC.

There are no laws or regulations specifically governing the pottery industry, which is controlled by the general provisions of the Factory Law and its subsidiary regulations. A copy of these is enclosed, and reference invited to pp. 38-43, & 45-49 in particular. In practice most firms, in the case of accidents to employees, give a somewhat larger sum than that provided by law.



## QUESTION 18.

The managers of factories visited agreed in stating that there was no special occupational disease in the pottery industry. There are no statistics of such diseases available, and it seems likely that the Managers' statement is on the whole correct. They all denied that there was any lead poisoning, and said that they did not think cases of phthisis which occurred were directly attributable to the occupation.

Most factories of any considerable size only admit employees after medical examination, and have further examinations twice or four times a year.

Re compensation, v. answer to 17-20 above. Some firms have instituted a system of insurance.

## QUESTION 21.

In the large works all processes are assisted by machinery as in Europe.

*Slip House.* The modern factories are equipped with large blungers, Alsing grinding cylinders, sifting lawns, presses, and pug mills. The French revolving pressure pug mill is in common use.

*Saggur making.* The Morimura Works contain 6 pug mills, several large power driven saggur presses and 14 hand presses. Most Works contain hand presses for saggur making.

*Forming Ware.* All methods are practiced: pressing, casting, hollow-ware, jiggering, flatware jiggering, throwing and turning.

The Japanese operatives are expert at casting, which is not new to them. They are less used to jiggering, and are less efficient in this process than European workmen. This is evidenced by the relatively high cost of producing plates. There is a high percentage of plates which sag or otherwise lose shape in the kiln, and when production is accelerated the loss increases. This statement was confirmed to the writer by more than one expert.

The batting-out process, with batting block, is not used in modern factories, which are all equipped with spreaders.

*Mould making and Modelling* are carried out in the same way as in Europe.

It should be remembered that, while the above description is true of modern factories, probably more than two-thirds of the pottery produced in Japan is made, at least, in some processes, by old methods of manufacture, in households or communities. The most characteristic example of this is to be found in the Seto district, near Nagoya. In Seto and the neighbouring villages the whole population is engaged in pottery making and one can see all the members of a family, in their home, making models or moulds, or throwing ware on a wheel (turned by kicking the lower disk, sometimes by the potter, sometimes by a small boy); or pressing bowls, casting, or jiggering—all by hand.

In factories in the transition stage, such as the Kōransha at Arita, or the Kinkozan Pottery at Kyoto one sees in the same shop power-driven jiggers and old-fashioned wheels turned by hand or foot.

#### QUESTION 22.

Machinery is almost exclusively driven by electric power—Hydro-electric enterprises being common in most parts of Japan.

#### QUESTION 23—TRANSPORT.

Transport is the weakest part of this, as of most Japanese industries. Raw materials are carried to the works in one-horse carts, and frequently in handcarts. Even in the most highly developed works this is true. Similarly materials are moved about the works almost entirely by hand labour, and (with the exception of the Nippon Toki and Toyo Toki works) the routing of product from one shop to another is ill-designed or not designed at all. The confusion in some of the medium sized works, which have grown up haphazard from small beginnings, is remarkable. No works have railway sidings for fuel or clay.

Transport from works to rail or ship of finished output is similarly handicapped.

#### QUESTION 24.

Most Prefectures have Technical Schools of middle school grade, and in those Prefectures where the pottery industry is important the Technical School either has a section devoted to pottery or is a pottery school exclusively. Instruction in all processes is given at these schools, and boys passing out of them obtain subordinate positions in factories, or, according to their gifts, take up decorating or similar work.

The Pottery schools visited at Seto, Arita and Kanazawa were equipped with machinery for each process—(the blungers, pug mills, presses, etc., being working models on a small scale) and the pupils are taken through all stages of manufacture.

The course lasts four years, but there is also a short practical course of 2 years for boys who wish to work in potteries as soon as possible.

The Higher Technical School in Tokyo have a Ceramic Department, and graduates in this branch are employed as chemists and managers in the larger factories. The most advanced works have a scientific staff, most of whom, in addition to their studies in Japan, have studied or travelled in Europe.

#### QUESTIONS 25 AND 26—ESTIMATION OF COSTS.

This has proved by far the most difficult part of the enquiry. The Japanese manufacturers were, with one or two exceptions, most unwilling to supply any information whatever and most of them flatly refused to give any particulars as to costs. It was moreover pretty clear that hardly any factory has a costing system at all, and that the systems which were in use were of an elementary nature. The following details therefore must be taken with all reserve.

1. Estimate of manufacturing cost, furnished by Nihon Toki Works, Nagoya, the largest works in Japan.



Materials	..	..	..	..	18.5%
Coal	..	..	..	..	26.3
Labour	..	..	..	..	41.1
All other	..	..	..	..	14.1

100.0

The firm state that this estimate is based on their returns for the period December, 1919, to November 1920. They add that it cannot be taken as representing the present cost, owing to violent fluctuations in prices of fuel and to changes in the labour situation. The costs in 1917 and 1916 were as follows:

<i>White Ware Costs.</i>		1917.	1916.
Materials	.. .. .	20.6	22.6
Coal	.. .. .	25.7	26.2
Wages	.. .. .	39.2	41.0
Overhead	.. .. .	14.5	10.2

100

100

2. Estimate of manufacturing costs, supplied by the Nagoya Seito Company. This firm is intermediate between the most modern firms like the Nihon Toki and the old style Japanese pottery firms.

Materials	.. .. .	20%
Wages	.. .. .	40
Fuel	.. .. .	33
Factory expenses including salaries	.. .. .	3
Business expenses, including salaries	.. .. .	4

Total .. 100

3. Computation of various components of manufacturing cost of porcelain in the Seto District.

These figures were furnished by a master-potter, member of the potters' guild, and were worked out by him in combination with an instructor at the Seto Pottery School.

Table showing the relation between the costs of production for all kinds of potteries and their labouring wages.

	Goods for home use (large)	Goods for home use (small)	Goods for Export	Costs of pro. for Electrical Goods	Average
Wages	2,136	2,820	2,376	1,996	2,332
Raw Materials	986	2,161	1,489	1,837	1,618
Fuel expenses	2,975	2,827	2,521	2,751	2,769
Expenses of miscellaneous other materials	714	428	786	350	569
Repairing expenses	274	98	193	118	171
Indirect expenses	963	357	982	1,107	852
Profits	1,952	1,309	1,653	1,841	1,689
Total	10,000	10,000	10,000	10,000	10,000



The above figures are reached by classifying the costs of production of all kinds of potteries from November, 1920, to April, 1921, into four kinds, average of which is also given. These statistics are based, however, on the costs of production by which the articles are sold to the merchants.

The wide variation under "indirect expenses" is accounted for by the fact that a great deal of the output is from small firms, individuals, or community kilns, and has to bear no fixed charge for interest on capital, rent, etc., as in the case of a company. This fact also probably accounts for the smallness of the figures for wages, since in many cases the "profits" represent a return for the actual labour of the group, whether household or community.

## PRICE LIST OF SAMPLES.

No. 1. Komatsu Toilet Set ..		Factory W/case.	Price.	F.O.B.
Composition as follows :—				
1 only Water pitcher	}	Y. 5.95 per set (12s. 1.7d.)		6.98 per set (14s. 3d.)
1 .. Basin .. ..				
1 .. Soup Dish .. ..				
1 .. Tooth Brush Stand				
2 .. Chamber Pots				
No. 2 A. Composition as follows :—		Without case.	F.O.B.	
1 doz. 10" Plate .. ..		5.61 per doz. (11s. 5.4d.)	6.75 per doz.	(13s. 9.3d.)
1 .. 8" .. ..		4.45 .. (9s. 1d.)	5.30 ..	(10s. 9.8d.)
1 .. 7" .. ..		3.15 .. (6s. 5.1d.)	3.75 ..	(7s. 7.8d.)
1 .. 6" .. ..		1.99 .. (4s. 0.7d.)	2.35 ..	(4s. 9.5d.)
1 .. 9" Soup Plate .. ..		5.40 .. (11s. 0.3d.)	6.50 ..	(13s. 3.2d.)
1 only 10" Platter .. ..		1.00 per pce. (2s. 0½d.)	1.22 per pce.	(2s. 5.8d.)
1 .. 12" .. ..		1.63 .. (3s. 3.9d.)	1.95 ..	(3s. 11.7d.)
1 .. 14" .. ..		2.84 .. (5s. 9.5d.)	3.40 ..	(6s. 11.3d.)
1 .. Oval Covered Dish ..		2.38 .. (4s. 10.3d.)	2.85 ..	(5s. 9.8d.)
1 .. Round .. ..		1.94 .. (3s. 11.5d.)	2.30 ..	(4s. 8.3d.)
1 doz. Soup Tureen .. ..		3.45 per doz. (7s. 0.5d.)	4.15 per doz.	(8s. 5.6d.)
1 .. Sauce Boat .. ..		1.10 .. (2s. 2.9d.)	1.32 ..	(2s. 8.3d.)
1 .. Tea C/sr. .. ..		4.25 .. (8s. 8.1d.)	5.12 ..	(10s. 5.4d.)
No. 2 B. Composition as follows :—		Without case.	F.O.B.	
1 doz. 10" Plate .. ..		7.14 per doz. (14s. 6.9d.)	8.58 per doz.	(17s. 6.2d.)
1 .. 8" .. ..		5.75 .. (11s. 8.8d.)	6.95 ..	(14s. 2.2d.)
1 .. 7" .. ..		4.23 .. (8s. 7.6d.)	5.10 ..	(10s. 4.9d.)
1 .. 6" .. ..		2.74 .. (5s. 7.1d.)	5.30 ..	(10s. 9.8d.)
1 .. 9" Soup Plate .. ..		6.94 .. (14s. 2d.)	8.38 ..	(17s. 1.3d.)
1 only 10" Platter .. ..		1.26 per pce. (2s. 6.8d.)	1.48 per pce.	(3s. 0.2d.)
1 .. 12" .. ..		2.09 .. (4s. 3.2d.)	2.50 ..	(5s. 1.2d.)
1 .. 14" .. ..		3.60 .. (7s. 4.2d.)	4.30 ..	(8s. 9.3d.)
1 .. Oval Covered Dish ..		3.20 .. (6s. 6.4d.)	3.80 ..	(7s. 9.1d.)
1 .. Round .. ..		2.64 .. (5s. 4.6d.)	3.20 ..	(6s. 6.4d.)
1 doz. Soup Tureen .. ..		4.59 per doz. (9s. 4.4d.)	5.15 per doz.	(10s. 6.1d.)
1 .. Sauce Boat .. ..		1.43 .. (2s. 11d.)	1.75 ..	(3s. 6.8d.)
1 .. Tea C/sr. .. ..		5.95 .. (12s. 1.7d.)	7.15 ..	(14s. 7.1d.)
No. 3 A. White & Gold Jugs, 6¼"		W/case.	F.O.B.	
B. Decorated Jugs, 6"		4.20 per doz. (8s. 6.9d.)	4.80 per doz.	(9s. 9.6d.)
C. Plain white Jugs, 5¼"		3.35 .. (6s. 10d.)	3.75 ..	(7s. 7.8d.)
		2.20 .. (4s. 5.9d.)	2.55 ..	(5s. 2.4d.)
No. 4 A. White & Gold Paris shaped C/saucers. Q'lty. sample only (Better quality) .. ..		W/case.	F.O.B.	
B. do. do. (Medium) ..		2.00 per doz. (4s. 1d.)	2.28 per doz.	(4s. 7.8d.)
C. do. do. (Lowest) ..		1.75 .. (3s. 6.8d.)	1.98 ..	(4s. 0.5d.)
		1.55 .. (3s. 1.9d.)	1.78 ..	(3s. 7.6d.)
No. 5. Australian market Teaset of 21 pieces.		W/case.	F.O.B.	
Composition as follows :—				
1 doz. Tea C/Saucers }	}	1.68 per set (3s. 5.1d.)		1.90 per set (3s. 10.5d.)
1 .. 6" Plate				
1 .. S/Creamer				
1 only B.B. Plate				

Destination.	Date of Shipment	Description.	Invoice Value	Home Consumption Value at Shipment Date
Durban	Oct. 1920	Porcelain Cups and Saucers	Yen. c.i.f. 5.40 per doz.	Yen. 3.90 per doz. (7s. 11.5d.) 2.90 .. (5s. 11d.)
Zanzibar	Aug. "	Milk Jugs 5" blue band ..	(11s. 0.3d.) (8s. 6d.)	(7s. 11.5d.) (5s. 11d.)
"	"	Porcelain Cups and Saucers	1.75	1.65 (3s. 4.4d.)
"	"	"	2.86	2.70 (5s. 6.1d.)
"	"	"	2.50	2.30 (4s. 8.2d.)
"	"	Soup Plates ..	3.40	4.20 (8s. 6.8d.)
"	"	"	1.47	1.25 (2s. 6.6d.)
"	"	Meat Plates ..	3.74	3.54 (7s. 2.7d.)
Johannesburg	Nov. "	Porcelain "Platta Switches," 10 amp.	-49 per pce.	-49 per pce. (1s.)
"	Feb. 1921	Shackle Insulators, 2 1/2	13	.13 (3.1d.)
"	"	Kaga Teasets, 27 pieces ..	14.00	14.00 (61 8s. 7d.)
"	"	Imitation Satsuma Teasets, 27 pieces ..	17.00	17.00 (61 14s. 8 1/2d.)
"	Oct. 1920	Insulators—		
"	"	Recessed block, 12" x 12"	1.56 (3s. 2.2d.)	1.75 (3s. 6.8d.)
"	"	" 3" x 6"	-42 (10.2d.)	-53 (1s. 0.9d.)
"	"	" 6" x 9"	-85 (1s. 8.8d.)	-85 (1s. 11.2d.)
"	"	" 3" diam.	-11 (2.6d.)	-12 (2d.)
Durban	Oct. 1920	Porcelain Egg Cups, red printed	£1 4s. 0d. gross c.i.f.	(£18 4s. 2d.)
"	"	Pepper Pots, 200 dozen ..	(£29 14s. 10d.) c.i.f.	
"	"	Meat Plates, 10" blue band	not packed	3.15
"	"	Soup Plates, 10" blue band	3.15 per doz. (6s. 5.1d.)	3.25
"	"	Cups and Saucers, plain White	2.00 .. (5s. 11d.)	2.90
"	"	Cups and Saucers, gold line	3.30 .. (6s. 8.8d.)	3.30

NOTE.—"Invoice value" is the price at factory for export goods packed unless otherwise stated.



## EXTRACTS FROM INVOICES.

April, 1921.	To Durban Shipped by Morimura Brothers to their branch in Durban.		
	9 cases Coffee Cups and Saucers, "Mazarin band," each containing 20 doz. @ Yen 1-95 (3s. 11-7d.) per doz.		
	Manufacturing cost .. .. .	Y. 351-00	(£35 16s. 7½d.)
	Cases and packing (13 c. ft. each) .. .	52-65	(£5 7s. 6d.)
	Iron hooping .. .. .	2-88	(5s. 10½d.)
	8 cases, ditto .. ditto .. .. .	312-00	(£31 17s. 0d.)
	Cases and packing .. .. .	47-70	(£4 17s. 4½d.)
	Iron hooping .. .. .	2-56	(5s. 2½d.)
		769-79	(£78 9s. 7½d.)
	Commission, 10% on manufacturing cost ..	66-30	(£6 15s. 4d.)
	Local transport .. .. .	17-84	(£1 16s. 5d.)
	Shipping charges .. .. .	10-04	(£1 0s. 6d.)
	Insurance .. .. .	8-31	(16s. 11½d.)
	Consular fee .. .. .	1-25	(2s. 6½d.)
	Total ..	872-53	(£89 1s. 5d.)

Freight at destination.

April 1921.	To Durban.		
	300 doz. Porcelain Cups and Saucers. Home consumption value		
		Yen 1-90 (3s. 10½d.) per doz.	
	Invoiced at 7s. 9d. per doz. = £116 7s. 6d.		
	This amount includes—		

	£	s.	d.
Packing, etc. ..	14	9	10
Cartage to wharf ..		9	11
Lighterage ..	1	19	9
Insurance ..		1	2
Freight ..	22	4	8
Fee ..		2	6
	£40	9	5

Nov., 1920.	To Johannesburg.			Cost at
	2 cases Phlatta Switches, 10 amp. each,			factory including
	360 pieces 720 pieces .. @ 49 sen	=	352-80	(£35 5s. 7½d.)
	1 case Skackle Insulators, 500 pieces, 2½ × 2½			
	@ 3 sen ..	=	65-00	(£6 12s. 8½d.)
	6 Cases Pole Insulators .. @ 29½ sen	=	265-00	(£27 1s. 0½d.)
	etc., etc.			

Feb., 1921.	To Durban.		
	180 doz. Porcelain Cups and Saucers, blue band		
	@ 3-70 (7s. 7d.)	666-00	(£67 19s. 9d.)
	Invoice value @ Yen 5-40 (11s.) per doz. including 200-22 for		
	packing, lighterage, freight and insurance.		

Sept., 1920.	To Auckland, N.Z.		Yen
	10 cases= 360 doz. Cups & Saucers @ 1-90 per doz.	684-00	(£69 16s. 6d.)
	Includes casing .. 63-00 (£6 8s. 7½d.)		
	Packing .. 20-00 (£2 0s. 10d.)		
	Hooping .. 10-00 (£1 0s. 5d.)		
	Cartage & lighterage 14-00 (£1 8s. 7d.)		
	107-00	107-00	(£10 18s. 5½d.)
	Factory price ..	577-00	(£58 18s. 0½d.)

Oct., 1920.	<i>Brisbane.</i>		Yen
17 cases	Porcelain Insulators @ 10½ cen.		
8160	pieces in all		656 00 (67 0s. 5½d.)
	Add charges		122 40 (12 0s. 1¼d.)
	Value c.i.f.		778 40 (79 13s. 7¼d.)

Oct., 1920.	<i>Durban.</i>		
	Split Bobbin, 3-way	c.i.f.	2½d. per piece
	3-way Cleats, Porcelain		2½d. " "
	Porcelain Ceiling Roses		5½d. " "
	„ Bobbin Insulator		26s. 3d. " 100

Destina- tion	Date of Shipment	Description.	Invoice value	Home Consumption Value
			Yen per doz.	Yen
Sydney ..	Oct., 1920	9" Meat Plates .. ..	2 15 (4s. 4 6d.)	1 50 (3s. 0 5d.)
	" "	9" Soup " .. ..	2 20 (4s. 5 6d.)	1 54 (3s. 1 7d.)
		Cups and Saucers .. ..	2 50 (5s. 1 2d.)	1 75 (3s. 6 6d.)
Auckland	Sep., 1920	Porcelain Cups & Saucers	1 90 (3s. 10 5d.)	—
Sydney ..	Oct., 1920	Porcelain Insulators ..	(10½d.)	—
Melbourne	April 21, 1921	9 cases each 24 dozen Meat Plates @ 5s. 5d. per doz. c.i.f. Melbourne .. ..	(£58 10s. 0d.)	—
		<i>Less</i>		
		Commission, 5% 2 18 6		
		Packing 9 0 0		
		Freight 6 6 6		
		Insce. 10 11		
		Fordg. charges 13 10		
		£19 9 9	£19 9 9	
		Home consumption value	£39 0 3	
			c.i.f.	per doz.
Sydney ..	Oct., 1920	9" Meat Plates, 480 doz. ..	Yen 2 15 (4s. 4 6d.)	Yen 1 50 (3s. 0 5d.)
		9" Soup " 240 " ..	2 20 (4s. 5 6d.)	1 54 (3s. 1 7d.)
		Cups & Saucers 720 " ..	2 50 (5s. 1 2d.)	1 75 (3s. 6 6d.)
Mauritius	Oct., 1920	Morimuras 9" Soup Plates 9" Dinner ..		per doz. 3 17 (5s. 1 4d.) 2 00 (3s. 0 6d.)

*Copy letter from Mr. G. B. Sansom as to comparison of the standard of living of workpeople in Japan with that of the standard in Great Britain.*

Business Series No. 7.

Office of H.M. Commercial Attaché,  
British Consulate General,  
Yokohama.

6th February, 1922.

Dear Major Wedgwood,

I am answering on behalf of Mr. Crowe a part of the letter which you wrote to him on October 24th, from the Offices of the National Council of the Pottery Industry.

You asked whether it was possible briefly to indicate the standard of living or mode of living of the pottery operatives in Japan. After considering this question I decided that it was not possible without special enquiry. I could, of course, have furnished some sort of statistics but they might be erroneous and they would almost certainly be misleading and, therefore, I preferred not to give any opinion at all on the subject. Recently however, I have come across some household budgets published by the Seamen's Union, a body which was formed in Japan after the International Maritime Conference of Genoa. These Budgets are probably not completely accurate in all details, as they are intended to prove that the wages of Japanese seafaring men are insufficient, but in one sense this is rather an advantage because, as you will see from the specimen budget which I enclose herewith, even supposing the imaginary family in question to be living a life extravagant under Japanese conditions, a total income of about ¥100 per month (£10 4s. 2d.) gives no margin whatever for recreation or amusement of any sort, although the family concerned are living at a very low standard, low as to diet, housing and clothing.

You will see that the figures afford no real standard of comparison between the lives of wage-workers in Japan and those in the United Kingdom; but they are of some negative value in that they show that such comparison is not really possible. To my mind—this is of course only a personal opinion—they demonstrate that there is practically no prospect of a reduction of wages in Japan, since even if the cost of necessities is reduced the demand for an improved standard of living must grow in strength and prevent any diminution in income.

Yours sincerely,

(Sgd.) G. B. Sansom.

Major F. H. Wedgwood,  
National Council of the Pottery Industry,  
6, Glebe Street, Stoke-on-Trent.



*Enclosure in Business Series No. 7, of the 6/2/22.*

"Office of H.M. Commercial Attaché,  
British Consulate General,  
Yokohama

### HOUSEHOLD BUDGETS.

1. A seaman, married, absent from home for all but 30 days per annum.

	Per month	
Rent—1 room, unfurnished, with water ..	10-00	£1 0 5
Light—1 16 candle-power light .. ..	94	1 11
Rice—3 go p.d. .. ..	4-05	8 3
Fish, vegetables, soy, etc., at 25 sen p.d. ..	7-50	15 3½
Charcoal .. ..	2-80	5 8½
Gas .. ..	1-50	3 0½
Bedding, upkeep and renewal every 6 years ..	42	10
Insurance for 1,000 yen, (£102 1s. 8d.) at age of 20, for 50 .. ..	2-41	4 11
Clothing for wife, 49-50 p.a. .. ..	4-12	8 5
Sundry exs. 10 sen p. diem .. ..	3-00	6 1½
Newspapers .. ..	1-30	2 8½
Upkeep of kitchen utensils .. ..	30	8
Medicines, etc. .. ..	3-00	6 1½
Clogs, tabi, aprons, towels .. ..	72	1 5½
Soaps 30, Baths 75 .. ..	1-05	2 1½
Hairdresser, paper, etc. .. ..	84	1 8½
	<u>43-05</u>	<u>£4 9 8½</u>

This table is exclusive of the cost of keeping the husband on his return home between voyages.

If there is one child, the budget must be increased by 15 yen (£1 10s. 7½d.) for the food, clothing of the child, and if there is a child one room is insufficient, and there will be a minimum addition to rent of Yen 5 (10s. 2½d.)

The estimated cost of clothing and other expenses of the husband while at sea, excluding of course food and housing which are supplied by the ship, is Y42 (£4 5s. 9d.) per month. (This is probably excessive). In any case it is quite clear that the total budget of a family of four—that is to say, husband, wife and two dependents—cannot be much less than Y100 (£10 4s. 2d.) a month in this occupation."

*Copy letter from Sir E. T. F. Crowe, Kt., C.M.G.*

[COPY.]

Overseas Trade Despatch  
No. 316 (B).

Office of the Commercial Counsellor of H.M. Embassy,  
C/O British Consulate-General,  
Yokohama.

Sir,

December 1st, 1921.

I have the honour to enclose herewith an extract from the "Japan Advertiser" of the 26th November, from which it will be seen that the Bank of Japan has decided to start the compilation of correct and authoritative labour statistics.

I shall try and keep in touch with the Bank of Japan with regard to this matter and will secure their report as soon as possible. Up to the present most of the labour statistics which have been compiled have not been very accurate and as all work of this nature done by the Bank of Japan is of a very high standard, this report will be worth careful study.

I have the honour to be,

Sir,

Your obedient Servant,

(Sgd.) E. F. CROWE,

Commercial Counsellor of

H.M. Embassy, Tokio.

The Controller General,  
Department of Overseas Trade,  
London.

[COPY.]

Enclosure in O. T. Desp.,  
No. 316 (B) of 1/12/21.

*Extract from "Japan Advertiser" of November 26th, 1921.*

"The Bank of Japan has decided to start the compilation of correct and authoritative labor statistics and a staff of men well versed in the sort of work is appointed. The statistics which the bank intends to prepare are very comprehensive including not only labor in the employ of private factories but in the employ of the government.

This new enterprise has been decided upon by the Bank of Japan in view of the growing importance of labor problems and the necessity of labor being taken into account in fixing business policies on the part of business men. Governor Inouye of the Bank of Japan, in announcing this decision to the public yesterday, stated that in spite of the importance of labor censuses Japan had had no labor statistics prepared from the angle of purely economic standpoints. They are now being prepared by the Bank of Japan for the information of the bank, but they will also prove useful to the general public.

Governor Inouye made an appeal in yesterday's statement to business men, manufacturers and others interested in the matter for their co-operation in this new enterprise. The investigations are to be conducted on a large scale. In the first place the *status quo* of industries generally is to be studied all over the country. In the second place government enterprises are to be studied. In the third place labor's conditions are to be studied in respect of their wages, numbers, shifting and working hours."

**FACTORY LAW.**  
**ORDINANCE FOR THE ENFORCEMENT**  
**OF THE FACTORY LAW.**  
**REGULATIONS FOR THE ENFORCEMENT**  
**OF THE FACTORY LAW, ETC.**

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DEPARTMENT OF AGRICULTURE AND COMMERCE  
TOKIO.  
(1919)

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**FACTORY LAW.**

*(Law No. 46, promulgated on the 28th March, 1911.)*

**ARTICLE 1.**

The present Law shall apply to factories to which either of the following items is applicable:—

1. Factories in which at least fifteen operatives are regularly employed;
2. Factories in which the business is of a dangerous character or is considered injurious to health.

Factories to which the application of the present Law is not deemed necessary may be exempted therefrom by Imperial Ordinance.

**ARTICLE 2.**

The occupier of a factory must not employ therein persons under twelve years of age; this rule does not, however, hold in cases where persons of at least ten years of age at the time the present Law comes into force continue to be employed.

The Administrative Authorities may, by prescribing the conditions for employment, permit persons of at least ten years of age to be employed in light and easy work.

**ARTICLE 3.**

The occupier of a factory must not employ persons under fifteen years of age and women for more than twelve hours a day.



The competent Minister of State may, according to the nature of the work and for a term not exceeding fifteen years from the date at which the present Law comes into force, extend by not more than two hours the period of employment prescribed in the preceding clause.

The period of employment shall, even in cases where portions thereof are passed in different factories, be reckoned as a single period in regard to the application of the provisions of the preceding two clauses.

#### ARTICLE 4.

The occupier of a factory must not employ persons under fifteen years of age and women between ten o'clock in the evening and four o'clock in the morning.

#### ARTICLE 5.

In the cases to which any one of the following items is applicable the provision of the preceding article shall not apply; however, upon the expiration of fifteen years from the date at which the present Law comes into force, persons under fourteen years of age and women under twenty years of age must not be employed between ten o'clock in the evening and four o'clock in the morning:—

1. Employment in work for which there are special reasons for requiring the operations to be made at one spell;
2. Employment in work for which there are special reasons for requiring night operations;
3. Employment in alternation of two or more sets of operatives in work for which there are special reasons for requiring continuous operations day and night.

The nature of the work mentioned in preceding clause shall be specified by the competent Minister of State.

#### ARTICLE 6.

In case operatives are divided into two or more sets and employed alternately, the provision of Article 4 shall not apply for the term of fifteen years from the date at which the present Law comes into force.

#### ARTICLE 7.

The occupier of a factory shall allow at least two holidays every month to persons under fifteen years of age and women, at least four holidays in case operatives are divided into two sets and employed alternately between ten o'clock in the evening and four o'clock in the morning and in cases to which item 2 of the first clause of Article 5 is applicable, and a rest-time of at least thirty minutes during the period of employment when such period of employment for the day exceeds six hours and of at least one hour when it exceeds ten hours.

When operatives are divided into two or more sets and employed alternately between ten o'clock in the evening and four o'clock in the morning, their hours of employment shall be interchanged at the end of each term which shall not exceed ten days.

#### ARTICLE 8.

In case of necessity on account of natural calamities or disasters or fear of disasters, the competent Minister of State may suspend with respect to the kinds of business and within the districts which he shall specify, the application of the provisions of Articles 3—5 and the preceding article.

In case of extraordinary necessity through unavoidable causes, the occupier of a factory, with the permission of the Administrative Authorities, may, for a specified term, extend the period of employment irrespectively of the provision of Article 3, employ operatives irrespectively of the provisions of Articles 4 and 5, or withhold the holidays prescribed in the preceding article.

In case of extraordinary necessity the occupier of a factory may, after making previous report thereof on each occasion to the Administrative Authorities, extend the period of employment by not more than two hours for a term not exceeding seven days in one month.

With respect to business which is brisk at certain seasons, the occupier of a factory may, after previously obtaining the approval of the Administrative Authorities in regard to a fixed term, extend the period of employment by not more than one hour during such term at a rate not exceeding one hundred and twenty days a year; in such case the provision of the preceding clause shall not apply during the term in respect of which the said approval was obtained.

#### ARTICLE 9.

The occupier of a factory must not allow persons under fifteen years of age and women to clean, lubricate, examine, or repair dangerous parts of any machinery or mill gearing in motion or put on or take off the belts or ropes of any machinery or mill gearing in motion, or to engage in other dangerous work.

#### ARTICLE 10.

The occupier of a factory must not allow persons under fifteen years of age to engage in work in which poisonous or powerful medicines, or other injurious substances, or explosive, inflammable, or ignitable substances are handled, or in work in places where a considerable quantity of dust or powder is raised or noxious gases are generated, or in places which are otherwise dangerous or injurious to health.

#### ARTICLE 11.

The nature of the work mentioned in the preceding two articles shall be determined by the competent Minister of State.



The provision of the preceding article may, under such conditions as may be determined by the competent Minister of State be applied with respect to women of not less than fifteen years of age.

#### ARTICLE 12.

The competent Minister of State may make restrictive or prohibitory provisions with respect to the employment of sick persons or women after accouchement.

#### ARTICLE 13.

In case the Administrative Authorities deem that a factory and its accessory buildings and equipment are likely to prove dangerous or be injurious to health, public morals, or other public interests, they may, in such manner as may be determined by ordinance, order the occupier of the factory to take measures necessary for prevention or removal of such evils, or may, if they deem it necessary, suspend the use of the whole or a part of the said factory, accessory buildings and equipment.

#### ARTICLE 14.

A competent official may inspect a factory or the accessory buildings thereof; in such case he shall carry the identification card therefor.

#### ARTICLE 15.

In case an operative is, without any serious fault on his part, injured, taken ill, or killed in the course of his work, the occupier of the factory shall, in such manner as may be determined by Imperial Ordinance, give relief to such operative or his surviving family.

#### ARTICLE 16.

A person who is serving or proposes to serve as an operative or an apprentice, or the occupier of the factory or his legal representative or factory-manager may obtain gratuitously from the census-registry official a certification respecting the census register of the person who is serving or proposes to serve as an operative or an apprentice.

#### ARTICLE 17.

Matters relating to the engagement and discharge of operatives, to the control of employment agencies, and to apprentices shall be determined by Imperial Ordinance.

#### ARTICLE 18.

The occupier of a factory may appoint a factory-manager possessing absolute authority in respect of the factory.

In case the occupier of a factory does not reside within the district where the present Law is in force, he must appoint a factory-manager.

For the appointment of a factory-manager the approval of the Administrative Authorities must be obtained; this rule, however, does



not hold in case of appointment to such post of a director of the juridical person concerned, the partner who conducts the business of the company, the partner representing the company, a director, the managing partner, any other person representing the juridical person concerned according to the provisions of laws and ordinances, or the manager.

#### ARTICLE 19.

The factory-manager mentioned in the preceding article shall take the place of the occupier with respect to the application of the present Law and ordinances that may be issued in accordance therewith; this rule, however, does not hold in respect of Article 15.

If there is no factory-manager in case the occupier of the factory is a minor who does not possess the same capacity as an adult in regard to his business or is an incompetent person or a juridical person, the provision of the preceding clause shall also apply with respect to the legal representative or director of such occupier, the partner who conducts the business of the company, the partner representing the company, a director, the managing partner, or any other person who represents the juridical person concerned according to the provisions of laws and ordinances.

#### ARTICLE 20.

Any person who contravenes the provisions of Articles 2-5, Article 7, Article 9, or Article 10, and fails to submit to dispositions made according to the provision of Article 13 shall be liable to a fine of not more than five hundred yen.

#### ARTICLE 21.

Any person who, without reasonable cause, refuses or obstructs the inspection of a competent official or fails to answer his questions shall be liable to a fine of not more than three hundred yen.

#### ARTICLE 22.

The occupier of a factory or the person who takes the place of the occupier according to Article 19 shall not, in the event of the commission of an act in contravention of the present Law or ordinances that may be issued in accordance therewith, by his representative, the head or a member of his family, a person living in his house, his employé, or any other person engaged in his business, be exempted from the penalty therefor on the ground that such act was not committed by his direction; this rule, however, does not hold if he has taken proper care with regard to the management of his factory.

The occupier of a factory or the person who takes the place of the occupier according to Article 19 shall not be exempted from the penalties prescribed in the present Law on the ground that he was ignorant of the age of the operative concerned; this rule, however, does not hold in case there was no fault on the part of the occupier, the person who takes his place according to Article 19, or the person in charge of the said operative.

## ARTICLE 23.

Any person who is dissatisfied with any disposition of the Administrative Authorities under the present Law may lay a complaint; and any person who deems that his rights have been illegally injured may have recourse to administrative litigation.

## ARTICLE 24.

The competent Minister of State may, with respect to factories not coming within the purview of Article 1, which use motive power, apply the provisions of Article 9, Article 11, Article 13, Article 14, Article 16, and Articles 18—23.

## ARTICLE 25.

The present Law and ordinances that may be issued in accordance therewith shall, with the exception of the provisions relating to factory-managers and the penalties, apply to Government or public factories.

With regard to Government factories, the competent Authorities shall, under the present Law and ordinances that may be issued in accordance therewith, perform the duties which pertain to the Administrative Authorities.

## SUPPLEMENTARY PROVISION.

The date at which the present Law will come into force shall be determined by Imperial Ordinance.



# ORDINANCE FOR THE ENFORCEMENT OF THE FACTORY LAW.

(Imperial Ordinance No. 193, August 2, 1916.)

## CHAPTER I.

### GENERAL RULES.

#### ARTICLE 1.\*

Factories which are engaged exclusively in the work of the following nature are exempted from the application of the Factory Law, the present rule not holding, however, the factories employing prime movers, specified by the Minister of Agriculture and Commerce:

#### The manufacture

- of cake and confectionery, "ame," or of bread;
- of agar-agar, "koori-konnyaku," "koori-tofu," "yuba," "men-rui," or of "fu";
- of "nigori-sake," "shiro-sake," "mirin," "shochu," vinegar, soy, or "miso";
- of basket trunks, hanging bamboo screens, bamboo cages and baskets; ribs of Japanese umbrella, or of other articles made of wicker, rattan, bamboo, bamboo-sheath, wood shaving (chips), vines, stalks or straw; of chip-braids or straw-braids;
- of hats and other articles made of "atan," panama leaf, or other substances of similar nature;
- of folding fans, flat fans, Japanese umbrella, or of Japanese or Chinese lanterns;
- of toys, or artificial flowers, made chiefly of paper, thread, cotton, bamboo, or woven tissue;
- of pattern paper, paper box, "motoyui" or "mizuhiki";
- of wearing apparel, "tabi" or other tailorings;
- of hand-made cord;
- of embroidery, lace, batten lace, or drawn work.

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\*"Ame"—A kind of maltose.

Agar-agar—Japanese isinglass.

"Koori-konnyaku"—A kind of food made of the root of hydranome.

"Koori-tofu"—A kind of congealed bean jelly.

"Yuba"—A kind of bean curd.

"Men-rui"—All stringy food made after the style and substance of vermicelli.

"Fu"—A kind of baked gluten.

"Sake"—A kind of alcoholic beverage brewed from rice (filtered).

"Nigori-sake"— " " " (not filtered).

"Shiro-sake"—A kind of liqueur.

"Mirin"— " "

"Shochu"—A Japanese spirit.

"Miso"—A kind of pasty food made of bean, rice or barley, and salt.

"Motoyui"—A kind of paper string.

"Mizuhiki"— " "

"Tabi"—Japanese socks.



## ARTICLE 2.

Factories which come under the Mining Law shall be exempted from the application of the Factory Law.

## ARTICLE 3.

Factories which engage in work of the following nature shall come within the purview of the Article 1, Clause 1, Item 2 of the Factory Law;

The manufacture of poisonous and dangerous substances;

Taxidermy.

Smelting, melting or refining of metals.

The manufacture

of meters using mercury;

of matches.

The manufacture of handling of gun powder, explosives, fuses, cartridges or fire-works.

The manufacture

of paints or pigments;

of ether;

of rubber goods that require a solvent.

The refining of fatty oils.

The extraction of resins or oils.

The manufacture of boiled oil.

The distilling or refining of mineral oils.

The manufacture of imitation leather, or water-proof paper or cloth, that requires a drying oil or a solvent.

Works that employ the sulphurous acid gas, chlorine gas or hydrogen gas.

The dry grinding of metals, bones, horns, or shells.

The manufacturing, etching, sand blasting or powdering of glass.

The raising of woven or knitted goods.

The manufacture of wad cotton.

Hackling of hemp.

Other works prescribed by the Minister of Agriculture and Commerce.

## CHAPTER II.

AIDS TO OPERATIVES OR TO THEIR  
SURVIVING FAMILIES.

## ARTICLE 4.

In case an operative is injured or falls ill or is killed, in the course of his or her work, the occupier of the factory shall extend relief, in pursuance of the provisions of the present chapter, except when the occupier proves that the accident was the result of a serious fault on the part of the operative. Provided that in case the party entitled to the relief is awarded a compensation for the same cause, in virtue of the provisions

of the Civil Code, the occupier may subtract from the relief he extends such amount as is equivalent to the compensation awarded.

The discharge of the operative shall not alter the obligations to extend relief of the preceding clause, unless it be specially provided otherwise.

#### ARTICLE 5.

When an operative is injured or falls ill, the occupier of the factory shall, at his own expense, cause the operative to be medically treated, or shall bear expenses necessary for medical treatment.

#### ARTICLE 6.

The occupier of a factory shall grant a monetary aid amounting at least to one-half per day of the amount which the operative is entitled to, during the time the latter is paid no wage by staying away for medical treatment. When such aid continues for three months or more, the occupier may reduce its amount down to one-third of the wages.

#### ARTICLE 7.

In case the injury or illness occasions to the operative such physical or mental disability as is prescribed below, the occupier of a factory shall extend to him or her an aid according to the following scale:

1. Helplessly maimed for life.....not less than 170 days' wages.
2. Disabled for work for life.....not less than 150 days' wages.
3. Disabled for the former work; made hopeless of recovering former health, or disfigured in the features in the case of a woman.....not less than 100 days' wages.
4. Irrecoverably maimed but able to engage in the former work..... not less than 30 days' wages.

#### ARTICLE 8.

In the case of the death of an operative the occupier of a factory shall pay to the surviving relative of the deceased operative an amount equivalent to his wages for not less than 170 days.

#### ARTICLE 9.

In the case of the death of an operative the occupier of the factory shall present not less than ten yen as funeral expenses to the relative of the deceased operative, who looks after the funeral.

#### ARTICLE 10.

The recipient of allowances to the surviving relative shall be the spouse of the deceased operative.

In the absence of a spouse, the allowances shall go to the nearest relative in direct consanguinal order, the descendant having the



precedence in case the descendant and ascendant are in the same degree of relationship, provided such recipient was in the same family as the operative at the time of his or her death.

#### ARTICLE 11.

The precedence of relatives in the same degree of consanguinity, prescribed in Clause 2 of the preceding Article shall be as follows;

1. The successor to the deceased operative or the head of his family, has the precedence of all others.
2. A male has the precedence of a female.
3. Among males or females in the direct order of descent, the legitimate child has the precedence of all others, and among a legitimate child, a registrally recognised illegitimate and unrecognised illegitimate child, the legitimate or registrally recognised illegitimate child, such child even of the feminine sex to have the precedence of illegitimate child.
4. Among persons in the same order of precedence in the two preceding Clauses the senior in age has the precedence among persons of the same order.

#### ARTICLE 12.

In case there is no person to come under the provisions of Article 10, the allowances shall go to one of the following persons, it being provided that should there be a will left by the deceased operative or a previous notice made by him to the occupier of the factory specifying one of the following persons, such will or notice shall be respected:

1. The successor to the deceased operative or the head of his family.
2. A brother or a sister who was living in the same house as the operative at the time of his or her death.
3. A relative or person who was living in the same house as the operative and was subsisting on the earnings of the operative at the time of his or her death.

#### ARTICLE 13.

The aid provided for in Article 6 shall be paid not less than once a month, the same applying also to payment to the beneficiary according to Article 5.

#### ARTICLE 14.

In case an operative, who receives an aid according to Article 5, fails to recover from the injury or illness in three years from the date of his or her first medical treatment, the occupier of the factory may discontinue the aid provided for in the present Chapter, after giving an amount equivalent to the operative's wages for 170 days.



## ARTICLE 15.

The occupier of a factory may refuse to extend allowances provided for in the present chapter, under any of the following circumstances;

1. When allowances are claimed after one year of the discharge of the operative. It is provided, however, that this rule does not apply to a claim which is made in consequence of an injury or illness, owing to which the operative had formerly been in receipt of aids. The same proviso applies in the case of a claim made in consequence of an injury or illness which occasioned a claim before or within one year after discharge.
2. When an injury or illness, which had healed under medical treatment received with the aid, returns after the operative's discharge.

## ARTICLE 16.

The amount of wages to form the basis of calculation in figuring out the allowances provided for in Articles 6, 7, 8, and 14 is specified as below;

1. The amount of wages, when such wages are of a fixed amount.
2. In piece or time work, an average earning, in the case of illness, of 30 days previous to the day but one on which the physician diagnoses it to have broken out, or 7 days before the physician has seen, and in the case of injury or death, of 30 days previous to the day but one on which the accident occurred.
3. Such amount as is fixed in the Allowances Regulations, in case it is impracticable to figure out a proper amount in accordance with the provisions of the two preceding Items. In case the Allowances Regulations make no provision, the local Governor shall determine the amount.

## ARTICLE 17.

In case the occupier of a factory supplies food and other articles, their cost shall be reckoned into the amount to be figured out in accordance with Item 1 or 2 of the preceding Article.

## ARTICLE 18.

The local Governor may, in exercise of his official powers or in response to a petition, institute enquiries into the cause or causes of an operative's injury, illness, or death, or into the extent of physical injury or other matters pertaining to the grant of allowances, provided for in Article 7, or offer to mediate.

When deemed necessary in the case of the preceding clause, a medical diagnosis or post-mortem examination may be ordered.

## ARTICLE 19.

The occupier of a factory shall draw up rules determining the amount, the procedure, and other necessary matters pertaining to the grant of relief allowances, and send a copy of the same to the local Governor, this applying also to any alteration which is made in the rules.

When deemed necessary the local Governor may order an alteration of the rules of allowances.

## ARTICLE 20.

Separate rules are provided for allowances to operatives in Government factories.

## CHAPTER III.

ENGAGEMENT AND DISCHARGE OF OPERATIVES  
AND EMPLOYMENT AGENCY.

## ARTICLE 21.

The occupier of a factory shall make and keep a name list of operatives in each workshop or factory.

Matters to be entered in the list of operatives shall be of such character as is determined by the Minister of State for Agriculture and Commerce.

## ARTICLE 22.

The operative's wages shall be payable not less than once a month in the country's currency.

## ARTICLE 23.

When a rightful claimant makes a claim in the event of the death or discharge of an operative, or under circumstances specified by the Minister of State for Agriculture and Commerce, the employer shall pay the wages without any delay.

All savings of the operative, kept in custody in the form of a reserve fund, a trust fund, or under any other name whatsoever shall, under circumstances provided for in the preceding Clause, be paid without any delay.

## ARTICLE 24.

In engaging operatives the occupier of a factory may not make a contract which contravenes the two preceding Articles, or that fixes a penalty or anticipates a compensation. It is provided, however, that this rule does not apply where the local Governor's permission is obtained for a previously determined method to carry out the following arrangement:

1. Where the operatives are made themselves to lay by their own savings or where a part of their wages is, for their own benefit, paid in other kind.
2. The occupier of the factory may hold back that portion of the operative's savings fund which is contributed by the occupier, when the operative is dismissed for violating the contract of engagement or in consequence of acts, for which the operative is held responsible.

#### ARTICLE 25.

When the occupier of a factory keeps in custody the operative's savings, he shall previously determine a reliable method for the purpose, for which he shall obtain the sanction of the local Governor.

#### ARTICLE 26.

In case a child, who has not yet finished the ordinary primary school course, is engaged, the occupier of a factory shall make a necessary arrangement for its schooling, for which he shall obtain the sanction of the local Governor.

#### ARTICLE 27.

When a minor or a woman operative is discharged to suit the employer's convenience, or when an operative, who is receiving allowances in pursuance of provisions of Article 5 or 6, or who comes under Item 1 or 2, Article 7, is discharged, and is to go home in the country within 15 days after his or her discharge, the occupier shall bear for him or her the necessary travelling expenses. The same rule applies to an operative who goes home in the country within 15 days after his or her allowances are stopped in virtue of the provisions of Article 14.

The provisions of Article 18 apply correspondingly to the travelling expenses in the preceding clause.

### CHAPTER IV.

#### APPRENTICES.

#### ARTICLE 28.

When an apprentice is taken into a factory it shall be subject to the following conditions:

1. That the aspirant shall take up work with the object of acquiring a knowledge and ability necessary for a definite occupation.
2. That he shall receive a training under the direction and care of a fixed trainer.
3. That he shall always be under definite supervision in regard to his moral culture.



4. That he shall be taken in subject to regulations sanctioned by the local Governor.

#### ARTICLE 29.

In order to apply for the sanction mentioned in Item 4 of the preceding Article the occupier of the factory shall furnish the following particulars:

1. The number of apprentices.
2. The age of apprentices.
3. The qualification of the trainer.
4. The course and period of training.
5. The method and the hours per day of work.
6. Matters pertaining to holidays and recesses.
7. The method of supervision concerning moral culture.
8. The method of granting allowances.
9. Regulations to be provided in accordance with the provisions of Article 30.
10. The terms of apprenticeship contract.

#### ARTICLE 30.

In case the apprentice is a minor or a female, means shall be provided to avoid danger or to prevent injury to health in pursuance of the spirit of the provisions of the Factory Law pertaining to workers under 15 years of age and female workers.

Art. 26 and the penalty relating thereto apply correspondingly to the taking in of apprentices.

#### ARTICLE 31.

The local Governor may order a necessary corrective measure, when he thinks that the occupier of a factory is failing to observe Item 4, Article 28, or is not able to fulfil requirements for the training of apprentices, or he may cancel the sanction provided for in Item 4 of Article 28.

#### ARTICLE 32.

In case the requirements of Article 28 are not fully met, the Factory Law and the present provisions relating to operatives shall be applied even though the occupier of the factory may call his operatives apprentices. The same rule applies to an apprentice, respecting whom the sanction provided for in Item 4 of Article 28 is cancelled.

### CHAPTER V.

#### PENALTIES.

#### ARTICLE 33.

The occupier of a factory shall be liable to a fine of not more than 200 yen, when he comes within the purview of the following items:

1. When he fails to obey the local Governor's order to alter the rules of allowances.
2. When he commits a fraud on engaging the operative.
3. When he fails to obey Article 24, or disregards conditions for obtaining sanction according to the provisory clause of the same Article.
4. When he executes an act which results in unjustifiably evading or attempting to evade in whole, or in part, his relief obligations.
5. When he executes an act which results in unjustifiably evading or attempting to evade, in whole or in part, the obligations, to pay wages, or to repay the operative's savings, or obligations according to Clause 1, Article 27.
6. When he administers the operatives' savings, without obtaining the sanction according to Article 25, or in disregard of the arrangement for which sanction has been obtained.
7. When he engages, without sanction according to Article 26, a child of school going age, who has not yet finished the ordinary primary school course.
8. When he fails to obey the local Governor's order, issued in accordance with the provision of Clause 4, Article 28, or of Article 31.

Any person shall be punished in the same manner as under the preceding Clause, when he commits a fraud in the interest of the occupier of a factory on engaging an operative, or causes or attempts to cause the occupier unjustifiably to escape, in whole or in part, the obligations of Item 4 or 5 of the preceding Clause. It is provided, however, that this rule does not apply, in case the occupier of the factory or a person who takes the place of the occupier is punishable in accordance with the provisions of Article 22.

#### ARTICLE 34.

Any person who commits a fraud in recommending an operative shall be liable to a fine of not more than 200 yen.

#### ARTICLE 35.

The occupier of a factory shall be liable to a fine of not more than 100 yen, when he comes within the purview of the following Items.

1. When he neglects to make or to keep on hand the operatives' name list.
2. When he neglects to make or to send to the authorities the rules of relief allowances.
3. When he pays the wages with a material other than the country's currency.



## ARTICLE 36.

When any act provided for in the present Ordinance, at the same time, contravenes the punitive provisions of the Criminal Code or of any other laws or ordinances, and when, for that reason the Criminal Code or any other laws or ordinances are applied to the occupier of the factory, or to the agent of a person who takes the place of the occupier or the head or a member of the occupier's family, or an inmate of his house, or an employee or others who are engaged in the work, even then, the present ordinance may be applied to the occupier or a person who takes the occupier's place.

## SUPPLEMENTARY PROVISIONS.

## ARTICLE 37.

The present Ordinance goes into force on and after the 1st of September, 1916.

## ARTICLE 38.

The provisions of Article 24 will not apply for one year after the enforcement of the present Ordinance, to contracts concluded previous to the enforcement of the present Ordinance.

Where there exists a usage different to the provisions of Article 22 in regard to the payment of wages, the occupier of a factory, with the permission of the local Governor, may, for not more than three years after the coming into force of the present Ordinance, make a contract fixing the time of payment to such extent as may not stretch it beyond the time of payment by the usage.

## ARTICLE 39.

An occupier, owning a factory which comes under the Factory Law at the time of the coming into force of the present Ordinance, for four months, from the date of coming into force of the present Ordinance, may not observe the provisions of Articles 19, 21, 22, 25 and 26.

When the occupier of a factory who administers operatives' savings, or employs as operatives or takes in as apprentices children of school-going age, who have not yet finished the ordinary primary school course, at the time of coming into force of the present Ordinance, applies within the period mentioned in the preceding Clause, for permission to follow the provisions of Articles 25, 26, or Article 30 Clause 2, former usages may be observed until an administrative measure is taken.

The foregoing provision applies correspondingly to the case of an application for permission under Clause 2 of the preceding Article.

## ARTICLE 40.

No Order and Ordinance in force shall lose its validity as long as it does not run counter against the Factory Law or the present Ordinance.



## ARTICLE 41.

The competent Minister of State or the Prefectural Governor may issue orders, other than those which are provided for in the present Ordinance, which are necessary for putting in force the present Ordinance concerning the engagement of operatives, their discharge and control of employment agents.

## ARTICLE 42.

The local Governor in the present Ordinance shall mean in Tokio Prefecture the Inspector General of the Metropolitan Police,



# REGULATIONS FOR THE ENFORCEMENT OF THE FACTORY LAW.

*(Ordinance No. 19 of the Department of Agriculture and  
Commerce, August 3, 1916.)*

## ARTICLE 1.

Prime movers coming under Article 1 of the Ordinance for the enforcement of the Factory Law include the steam engine, steam turbine, gas engine, oil engine, water turbine, Pelton wheel and electric motor.

## ARTICLE 2.

The application for permission according to Clause 2, Article 2 of the Factory Law shall be made to the local Governor, the same applying also to the application for the permission or the approval, or the report according to Article 8 of the same Law.

## ARTICLE 3.

At filatures and other factories engaged in the work of producing silk texture for exportation and specified to the effect by the announcement of local governor the occupier of the factory may extend the day's work for persons under 15 years of age or for women to 14 hours, during five years immediately following the coming into force of the Factory Law, and to 13 hours during the next ten years.

In weaving and knitting industry the occupier of a factory may extend the day's work for persons under 15 years of age or for women, to 14 hours during two years immediately following the coming into operation of the Factory Law.

## ARTICLE 4.

The work covered by Clause 1, Article 5 of the Factory Law is of the following items:

1. The work of canning, bottling, salting (pickling), smoking or boiling and drying fish and crustaceans, and other work necessary for the prevention of decomposition or deterioration. The work of canning fruits or making fruit wines.
2. The work of printing the newspaper.

## ARTICLE 5.

The nature of work covered by Article 9 of the Factory Law is as follows:

1. The work of cleaning, oiling, examining, or repairing the fly-wheel, crank, connecting rod, cross head, piston rod of prime movers, electric and other machinery, or of the power transmission equipment, the commutator of electric generators, the sharp cutters, toothed wheel, pulley, shaft, couplings or like dangerous parts while in motion.

2. The work of putting the belts or ropes on or off the machines or the power transmission equipment in motion by a dangerous method.
3. The work of stoking the boiler or of opening or shutting the feed water valve or the stop valve or of handling the safety valve.
4. The work of handling the electric generator, motor, transformer, or rheostat of the generator, or of switching the high pressure lines.
5. The work of feeding the sawing machine.
6. Work to be executed near a dangerous toothed-wheel, pulley, fly-wheel, belts, or ropes, which are not protected by a fence or any other contrivances to prevent dangers, or any other things of like nature.
7. Work to be executed on shaft way or scaffold with no fencing around or not otherwise protected or any place of like nature.

#### ARTICLE 6.

The nature of work covered by Article 10 of the Factory Law is as follows:

1. The work of handling arsenic, mercury or their compounds white phosphorus, phosphorus sulphide, hydrocyanic acid, kalium cyanide, hydrofluoric acid, sulphuric acid, nitric acid, hydrochloric acid, caustic soda, carbolic acid, and other like poisonous and dangerous substances.
2. The work of handling metallic kalium or natrium, natrium peroxide, ether, petroleum benzine, alcohol, carbon disulphide, or other like ignitable or inflammable substances.
3. Work at a place where the gun powder, explosives, fuses, cartridges or fire-works are handled.
4. Work at a place which is charged considerably with dusts and particles of metals, ores, earth, stones, bones, horns, rugs, animal wool or hair, cotton, hemp, straw, etc.
5. Work at a place which is charged with the dusts, vapors or gases of arsenic, mercury, white phosphorus, lead, hydrocyanic acid, fluor, aniline, chrome, chlorine, or their compounds, or other like noxious substances, or with acid gases.
6. The work of handling large quantity of substances of high temperature, or work at a place of high temperature where metals, ores, earth, stones, etc., are smelted, melted or roasted, or in a drying chamber of high temperature, or in other like places.



## ARTICLE 7.

The provisions of Article 10 of the Factory Law are applicable to female persons of 15 or more years of age in connection with work covered by Clauses 5 and 6 of the preceding Article.

## ARTICLE 8.

The occupier of a factory shall not employ persons who are afflicted with the following diseases, provided that this rule shall not apply when preventive measures against the infection are taken for persons afflicted with diseases enumerated in Item 4 or 5.

1. Insanity.
2. Leprosy, tuberculosis, laryngeal tuberculosis.
3. Erysipelas, recurrent fever, measles, epidemical cerebrospinal meningitis, and other like acute feverous diseases.
4. Syphilis, itch and other infectious skin diseases.
5. Conjunctivitis blennorrhoea, trachoma (of a strongly infectious type), and other like infectious eye diseases.

The occupier of a factory shall not employ persons who are afflicted with the pleurisy, heart disease, beri-beri, arthritis, tendovaginitis, acute disease of urogenital organ or other illness, of which there is a fear of its being aggravated by work.

The occupier of a factory shall not employ persons who have undergone an epidemic or a serious illness and do not recover former health, even after the disappearance of symptoms of the disease, it being provided however, that this rule does not apply to persons who are put to work of a nature which the doctor pronounces to be harmless.

## ARTICLE 9.

The occupier of the factory shall not employ a woman within five weeks after accouchement, it being provided that his rule does not apply to cases in which, at the end of three weeks after accouchement, the woman is put to work of a nature which the doctor pronounces to be harmless.

## ARTICLE 10.

The local Governor may order the occupier of a factory to restrict or prohibit work by a sick person or a woman after accouchement under circumstances other than those which are provided for in the preceding two Articles.

## ARTICLE 11.

The identification card provided for in Article 14 of the Factory Law shall be in accordance with form No. 1.

## ARTICLE 12.

The occupier of a factory shall put up, at a place easily seen in the work shop, particulars pertaining to hours of work, recesses, and holidays.

## ARTICLE 13.

The occupier of a factory shall state in writing of easy terms the main points of aids or relief to be extended to the operatives and cause them to be generally known among the operatives.

## ARTICLE 14.

When any operative, in the course of work, or in a workshop or in an accessory building, gets injured, falls ill or dies, the occupier of the factory shall, without delay, cause the case to be diagnosed or examined by a physician.

## ARTICLE 15.

In case there is no contract or usage in regard to figuring out the amount mentioned in Clause 1, Article 16 of the Ordinance for the enforcement of the Factory Law, or to calculating the allowances of Article 17 of the same Ordinance, one day's wage or allowance shall be obtained by dividing the sum into 360 equal parts where the agreement is by the year, or into 30 equal parts where the agreement is by the month.

## ARTICLE 16.

Entries in the operatives' name list shall be in accordance with form No. 2.

## ARTICLE 17.

The papers used for the operatives' name list shall be preserved for five years after the death or discharge of the operative.

## ARTICLE 18.

When the occupier of a factory transfers an operative from one workshop into another or from a workshop to outside of it, thus effecting a change of his or her post, such change shall be regarded as a case of engagement or discharge, in making entries in the operatives' name list.

## ARTICLE 19.

Papers relating to the engagement and relief of operatives shall be kept in each workshop.

The papers in the preceding Clause shall be preserved, in the case of those relating to engagement, for three years after the discharge or death of the operative, and in the case of those relating to allowances, for three years after the termination of the allowances.

## ARTICLE 20.

The circumstances in which the occupier of a factory is to pay the wages or to return the operative's savings, in accordance with the provisions of Article 23 of the Ordinance for the enforcement of the Factory Law shall be as follows:

1. When the operative goes home for over one month continuously.
2. When the operative requires money for the service of a marriage or a funeral.
3. When the local Governor determines by specific order.



## ARTICLE 21.

When the occupier of a factory applies for the approval of a factory manager he has appointed, he shall present an application paper to the local Governor together with a curriculum vitae of the appointed.

## ARTICLE 22.

The occupier of a factory shall without delay notify the local Governor each time the following event takes place:

1. When he has appointed a factory manager in accordance with the proviso of Clause 3, Article 18 of the Factory Law.
2. When the factory manager dies or is discharged.
3. When papers to be preserved in accordance with Article 17 or Clause 2, Article 19, are destroyed, or damaged.

## ARTICLE 23.

When the occupier of the factory wishes to alter the rules of allowances, he shall notify the particulars thereof to the local Governor one month previously.

## ARTICLE 24.

The occupier of a factory which regularly employs 50 or more operatives shall compile a bulletin every month, in accordance with form No. 3, and present it to the local Governor by the 20th of the following month, covering all cases of illness, injury or death of the operatives.

## ARTICLE 25.

Any persons who contravenes Article 8, 9, 12, 13, 14, 16, 17 or 19 or who disobeys the disposition provided for in Article 10, or who neglects to make entries in the operatives' name list or makes a false entry or entries therein, shall be liable to a fine of not more than 100 yen.

## ARTICLE 26.

Any person who neglects to present the notice provided for in Article 22, 23, or 24 or makes a false statement or statements shall be liable to a fine of not more than 50 yen.

## ARTICLE 27.

When acts provided for in the present Regulations come in conflict with the punitive provisions of the Criminal Code or of any other law or ordinance, and when therefore the Criminal Code or other law or ordinance is applied to the occupier of a factory or to the agent of a person who takes the occupier's place, or the head or a member of his family, or a person living in the same house, or an employee or any other person engaged in the work, for executing such an act, the occupier of the factory or any person taking his place may nevertheless be liable to be dealt with by the present Regulations.



## SUPPLEMENTARY PROVISIONS.

## ARTICLE 28.

The present Regulations go into force on and after the 1st September, 1916.

## ARTICLE 29.

The occupier of a factory conducting a factory subject to the provisions of the Factory Law at the time of coming into force of the present Regulations, may not observe the provisions of Articles 12, 13 and 24 for four months after coming into force of the present Regulations.

## ARTICLE 30.

An employer who continues to employ persons of over 10 and under 12 years of age at the time when the Factory Law goes into force, shall report their names, sex, dates of their birth and engagement to the local Governor by the 30th of September, 1916.

## Form No. 1.

<p>Art. 14, Factory Law:</p> <p>"A competent official may inspect a factory or the accessory buildings thereof; in such case he shall carry the identification card therefor."</p> <p>Art. 21, Factory Law:</p> <p>"Any person who, without reasonable cause, refuses or obstructs the inspection of a competent official or fails to answer his questions shall be liable to a fine of not more than three hundred yen."</p>	<p>No.</p> <p>Date of issue</p> <div data-bbox="605 778 888 921" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Name</p> <p style="text-align: right;">office</p> </div> <p>Departmental or Prefectural Seal.</p>
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Size, 2 sun 5 bu by 3 sun, to be folded into two at the dotted line, with an outside inscription: "Factory Inspection Identification Card."



### DIRECTIONS FOR MAKING ENTRIES IN THE OPERATIVES' NAME LIST.

1. In making the operatives' name list, at least one full sheet of paper shall be allotted to each operative, either in a card style or in any other form to suit the convenience of the occupier of the factory.

2. The occupier of the factory, to suit his convenience; may widen or narrow the column spaces in the present form, or provide special spaces between or outside the columns in it.

The position of each column must be in accordance with the order shown in the present form. It is provided, however, that with regard to the operatives' name list in use at the time when the Factory Law comes into force, the old order may be followed until a new list is made.

3. Separate name lists may be made to suit convenience, in order to distinguish the operatives by their work and sex or female workers and male workers under 15 years of age from the rest of operatives.

4. In the "antecedents" column shall be entered the operatives' educational record and a synopsis of his experiences in work.

5. In the "engagement" column shall be entered the date of engagement or of renewal of engagement, the term where engagement is by the term, and other important particulars pertaining to engagement.

6. In the "discharge" column shall be entered the date of discharge, the reason thereof and other important particulars pertaining to discharge.

In the case of death of an operative, its date, cause and course of events leading up to it shall be entered in the present column.

7. In the miscellaneous column shall be made the following entries:

a. When female workers or male workers under 15 years of age are employed in another factory, the work hours in such other factory (Clause 3, Article 3, Factory Law).

b. When an operative gives a previous notice of the person who is to receive the allowance to a relative after the operative's death, the name and domicile of such recipient, and his or her relations with the operative, and also the date of the notice (Proviso, Article 12, Ordinance for the enforcement of the Factory Law).

Other items which the occupier of the factory considers indispensable may also be entered in the present column.

8. The person responsible for the making of each card shall enter in the miscellaneous column or any other convenient place and sign his or her name or stamp his or her name there.





**DIRECTION FOR MAKING ENTRIES IN THE  
MONTHLY BULLETIN OF OPERATIVE'S  
ACCIDENTS AND ILLNESS.**

1. The size of one page of the paper used for the bulletin shall be one half the size of the "hanshi."

2. In the bulletin shall be entered exclusively the cases of those who stay away from work for three or more days continuously, on account of illness or accident, whether in the course of work or otherwise. In the case of death, it shall be entered even though the days off may be less than three days.

When two or more entries are to be made of one and the same operative in the bulletin of one and the same month, they shall be made separately.

3. In entering the cases of accidents and illness, they shall be grouped separately. Different sheets of paper may be used respectively for cases of accidents and illness.

4. In the column for the total number of operatives shall be entered the total number of operatives at work at the end of the bulletin month.

5. Entries in the "work and sex" column shall be made in accordance with the following examples, for instance, in a spinning factory: "cotton mixing section, man," "Yarn refining section, woman"; in a paper factory: "pulp section, man"; in a weaving factory: "warp section, woman".

6. In the "day staying away from work" column shall be entered the number of days not worked during the bulletin month.

When the number of holidays toward the close of one month does not come up to three days but will do so or exceed three days when counted together with those in the following month, they shall be summed up together and entered in the bulletin of the following month.

With regard to cases of "unrecovered" carried forward to the following month, it shall be entered in the bulletin of the following month even though holidays for that month do not come up to three days.

7. When the name of disease or the nature of accident or the date of falling ill or the date of accident is not ascertainable, it shall be entered as "unknown".

8. In the "results" column shall be entered the following particulars:

In the case of recovery within the month, the date thereof.

In the case of death within the month, the date thereof.

In the case of discharge before recovery, the date of discharge.

The case of those who pass the month unrecovered shall be marked with a circle (o) in the carried forward column.

PERMISSION FOR EMPLOYMENT ACCORDING  
TO CLAUSE II, ARTICLE II,  
FACTORY LAW.

*(Instruction No. 10 of the Department of Agriculture and Commerce.)*

August 2, 1916.

To the Prefectures (Tokio excluded);

The cases in which permission is to be given for the employment of minors of above ten and under twelve years of age, shall be dealt with as follows:

HIRONAKA KONO.

Minister of State for Agriculture and Commerce.

ARTICLE 1.

The purview of light and easy work is prescribed as follows:

1. Packing case, seaming, wrapping or pasting of labels, in factories which manufacture cake and confectionery, cigarettes, non-white phosphorus matches (the specified work at factories using white phosphorus matches may be treated as "light and easy" for two years immediately following the coming into force of the Factory Law), brushes or buttons.
2. Pasting boxes at card board box or match box factories.
3. Paper folding or stamp banding at printing or book-binding workshops or paper factories.
4. Attending to wastes at filatures.
5. Reeding, drawing-in, hand-reeling, or tube-reeling at weaving factories.

ARTICLE 2.

When in view of local conditions a permission is to be given for employment in work other than those enumerated in the preceding Article, the approval of the Minister of Agriculture and Commerce shall previously be obtained.

ARTICLE 3.

Permission shall be subject at least to the following conditions:

1. The day's work shall not exceed six hours.
2. In case the day's work exceeds three hours, a recess of 30 minutes or more shall be provided during the work hours.
3. Four or more holidays shall be provided each month.



# PRODUCTION OF POTTERY IN JAPAN.

Report by Mr. James F. Abbott, the American Commercial Attaché in Japan, on the Production of Pottery in Japan, received from the Commercial Counsellor to the British Embassy in Japan through the medium of the Department of Overseas Trade, with the suggestion that it may supply a great deal of the information asked for in the recent Questionnaire.

## INTRODUCTORY.

In 1915, the Bureau of Foreign and Domestic Commerce published a comprehensive report\* on the Pottery Industry in the United States, England, Germany, and Austria with especial reference to cost of production. The present modest report may be taken as a sort of supplement to the former, with particular reference to the production in Japan of those lines of pottery wares that find a place in the export trade to the United States or enter into competition with American goods in foreign trade.

January 1st, 1920

\*Department of Commerce Miscellaneous Series No. 21, "The Pottery Industry," 1915.

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### General and Historical.

THE Pottery Industry, one of the world's most ancient arts, developed early in the Orient. To China indeed is given the credit of inventing and perfecting the manufacture of porcelain. Toward the end of the sixteenth century this art was introduced into Japan by way of Korea, although specimens of Chinese porcelain had found their way into the country centuries before. The beginnings of porcelain manufacture in Japan are undoubtedly to be found in Arita where the so-called Arita "porcelain stone" was discovered in 1600. This district has been celebrated ever since for its pottery production. It is characteristic of Japanese ceramics that the numerous varieties have always been distinguished from one another geographically rather than by their characteristics. Thus Satsuma ware, Imari ware, Awata ware, etc., names well-known to foreign connoisseurs refer to the districts in which they are made. Indeed the common Japanese word for pottery, "Seto-mono" is derived from the town of Seto, in Aichi-Ken, most famous of all for its wares, much as our English word "China" is reminiscent of the country where the product originated.

In the beginning and for some centuries, the development of ceramics in Japan was influenced very greatly by other branches of aesthetics such as the tea-ceremony, and the product of the potter's kiln was treated as an art object exclusively. To the present day utilitarian uses are much subordinated to artistic uses except in the goods produced entirely for foreign consumption.

Japanese wares may be classed roughly in three groups:—

1. *Stone-ware*, including tiles and various utility objects, usually glazed and ornamented only by stamping or scoring, made in many parts of Japan and chiefly consumed locally.
2. *Faience*, such as Satsuma and Awata-ware, most often with a crackle glaze, and highly decorated. It is not fired at so high a temperature as porcelain and is consequently softer and more fragile but for the same reason more delicate colors may be used in decoration. Much of

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FOOTNOTE: Among the local wares best known to foreigners are:—

*SATSUMA* ware made in the neighbourhood of Kagoshima, a creamy faience with a fine crackle in the glaze and much decoration.

*AWATA* ware, a very similar ware made in Kyoto (Kinsogan).

*KIYOMISU-YAKI* a porcelain or hard semi-porcelain with a clear blue (cobalt) under glaze, also made in Kyoto.

*SETO* ware, harder as a rule and more brittle than Kiyomisu, although much like it.

*IMARI* (Iizen) made in the neighbourhood of Nagasaki. A porcelain or semi-porcelain with a blue underglaze decoration, and much overglaze decoration especially with red (iron oxide) and gold.

*HANEQ* ware, manufactured in the Province of Ise, a sort of Majolica or glazed earthenware, often with relief decorations or with a peculiar marbling due to the use of different clay.

*KUTANI* ware, a heavy porcelain made in Naga, highly decorated with gold and red.



this sort of ware has found its way abroad under the designation of "curios."

3. *Hard porcelain* and semi-porcelain (Kutani among the coarser wares and Seto, Imari and Kiyomizu among the finer).

† "The porcelain of Japan is made in a different way from that of China. Having been fashioned it is baked in a biscuit state, then painted with such colors as require a great heat and the glaze applied; then burnt again at a much higher temperature; any further decoration in enamel colours or gilding being subsequently fired in a muffle kiln. These numerous firings are less tenacious than those used in China, hence Japanese specimens are frequently slightly out of shape, and they seem to require numerous supports in the kiln which have left those scars on the glaze known as "spur marks."

### Production and Export.

#### A. Production.

The value of the earthenware and porcelain produced in all Japan for the year 1918 was 44, 214,084 yen (\$22,107,042) of which about 45 per cent was produced in the neighbourhood of Nagoya, 20 per cent in the adjoining province of Gifu and somewhat under 10 per cent each in the province of Saga and in the Kyoto district. The total number of employees (one third of whom are women) was 44,141 of which about 35 per cent were employed in the Nagoya district (including the Seto district and Aichi province). There were 1,032 kilns for porcelain and earthenware in the latter district, which is about one third of the number for the whole country. The value of the porcelain production in the Nagoya district in 1918 was \$9,911,101.

The relative production of different classes of potteries for 1917 was as follows; Ornaments and art-objects 18%; dishes 56%; industrial goods 10%; toys 5%; miscellaneous 11%.

The following table shows the production of pottery in Japan for the past decade:—  
(Table 1).

PRODUCTION OF JAPANESE POTTERY, 1908—1918.  
(1 Yen = .50 cents).

1908	..	..	..	..	..	5,366,991
1909	..	..	..	..	..	6,178,838
1910	..	..	..	..	..	6,634,997
1911	..	..	..	..	..	7,447,801
1912	..	..	..	..	..	8,272,772
1913	..	..	..	..	..	8,838,417
1914	..	..	..	..	..	7,828,428
1915	..	..	..	..	..	8,766,124
1916	..	..	..	..	..	12,810,174
1917	..	..	..	..	..	14,669,216
1918	..	..	..	..	..	22,107,042

Figures from Annual Statistical Report of Department of Agriculture and Commerce.

† Aug. W. Franks, "Japanese Pottery," 1906, Page 11.

*B. Export.*

A thriving trade in ceramics under the name of "curios" has always been a characteristic of Far Eastern commerce. So far as America is concerned Japan's share of this trade is now very large as the following summary will show. The figures of Table *A* are from the Annual Returns of the Foreign Trade of the Empire of Japan published by the Department of Finance, those of Tables *B* and *C* from the "Foreign Commerce of the United States," December, 1918. The discrepancy in the figures for the import of china from Japan may be due in part to different rates of converting yen into dollars.

It is almost impossible to distinguish statistically the dividing line between "curios" in the form of decorated teapots on the one hand and dinner sets of the conventional western type on the other.

A glance at the subjoined table (II) will show that whereas in the first half of the decade from 1908 to 1918, the export of pottery from Japan kept about the same figure, yet from the beginning of the war the annual export steadily increased until the amount for 1918 had grown to four times the figure for 1914. When we consider, however, the export of these goods to the United States, we find that whereas before the war we took nearly half of Japan's production, yet in 1918 this percentage had shrunk to less than one-fourth. At that, America is still one of Japan's best customers.

(Table II).

*A. EXPORTS OF POTTERY FROM JAPAN.*

(Rate 1 Yen = .50 cents).

	Value	Export to U. S. A.	Percentage
1918 ..	\$9,978,896	\$2,229,467	23.5
1917 ..	7,238,967	2,470,395	34.1
1916 ..	6,051,996	2,095,694	33.0
1915 ..	3,476,476	1,455,972	42.3
1914 ..	2,956,884	1,572,374	53.2
1913 ..	3,348,668	1,564,350	46.8
1912 ..	2,725,799	1,293,170	47.5
1911 ..	2,732,799	1,368,383	50.0
1910 ..	2,756,961	1,391,036	50.2
1909 ..	2,628,416	1,448,636	55.0
1908 ..	2,639,111	1,327,702	50.0

*B. IMPORTATION OF DECORATED CHINA, PARIAN, PORCELAIN AND BISQUE INTO THE UNITED STATES FROM:—*

France .. ..	\$572,873
Germany .. ..	72,307
United Kingdom .. ..	465,422
Japan .. ..	2,133,132
Other Countries .. ..	100,981



C. IMPORTATION OF DECORATED EARTHENWARE AND CHINAWARE  
(CROCKERY) FROM:—

United Kingdom	..	..	..	\$2,040,515
Japan	..	..	..	167,053
Other Countries	..	..	..	42,706

**Raw Material.**

The materials used in the manufacture of Japanese china and earthenware are similar to those used in other parts of the world, consisting in general, of clay, felspar and flint or quartz.

*Clays.* The so-called clays used in the manufacture of pottery-ware under consideration may be divided into two general groups, technically known as "Kaolin" and "Clay," the former being decomposed felspathic matter contained in granite rock, and the latter being an alluvial deposit. Chemically they are similar but physically they have different characteristics.

In Japan is found a third variety known as "rock clay" or "porcelain stone." This appears to be of similar construction to the kaolin but decomposition has not gone to the extent of complete disintegration of the rock. Kaolin for the potters' use is mined and washed in the same general manner in different parts of Japan. The Kaolin used in the Nagoya potteries comes chiefly from Yamaguchi in Aichi Ken and the following description is based upon the washing plant at Yamaguchi. This deposit is found in the high hills surrounding the town of Yamaguchi and is mined by tunneling. The Kaolin is loaded on small cars within the mine and run to a dump at the mouth of the tunnel or directly to the washing machines which are located in buildings a few hundred yards away. The cars are dumped on a platform and from there shoveled into a horizontal washing machine which consists of a barrel-shaped tub half filled with water, about twelve feet long and six feet in diameter. Within this barrel is a revolving horizontal shaft to which arms are attached which breaks up the mass.

The crude material as it comes from the mill consists of a certain percentage of kaolin, quartz sand and mica suspended in water. While going through the mixing process these particles are separated one from the other. As it is discharged from the mixer or "blunger" the quartz, being heavier than the kaolin, is deposited in a vat or tank. The kaolin and mica remaining, is then run through long troughs. These troughs are divided into branches so that the flow of the mixture will be retarded, permitting the mica which is lighter than the kaolin to float off upon the surface of the water. The kaolin mixture is then run into large vats or tanks made of cement measuring approximately twenty feet in length, twelve feet in breadth and six feet in depth. The plant in question contained ten of these settling vats.

The kaolin remains in suspension for a considerable time. When sufficiently settled or precipitated the surface water is drawn from the tanks, the remainder being pumped by hydraulic pumps into iron filter



presses. As the kaolin leaves the presses it has the form of large circular cakes similar in appearance to putty, being about two feet six inches in diameter and an inch thick. These cakes are then placed on boards in open air drying sheds or in fine weather laid on racks exposed to the sun. When these cakes are thoroughly dried they are ready for the market. The present laid down cost of this material at the factory is eighteen dollars per ton. The percentage of waste is extremely great in the Yamaguchi district, the actual amount of useable kaolin being only sixteen per cent of the entire mass that comes from the mine.

The sand washing from this mass is used to a limited extent in the steel mills and in the manufacture of fire brick, but the great bulk is thrown on dumps unutilised.

Some of the smaller pottery factories in the immediate neighbourhood of the mine purchase the crude material at a small price and wash it by hand. This hand process consists in placing the crude material in a large vat and stirring the mass up by hand, using a large wooden hoe-shaped instrument. After the mixing is thoroughly accomplished the entire mass is drawn from the bottom of the tank which is on the level with the top of the receiving tanks or vats. Between this outlet and the receiving vats is placed a copper wire screen which catches the coarser materials allowing only the kaolin and very fine particles of mica to pass into the receiving or settling tank. After the mixture has been allowed to settle, the surface water is drawn off and the remaining thick mixture is dipped out of these tanks and placed in large earthenware tubs to settle further. When the kaolin has been precipitated sufficiently it is taken out in a semi-liquid state and placed in earthenware pans or boards to dry in the sun. This material is not sold but after the other ingredients or the body mixture have been added, is used for the actual making of the ware desired. The process of washing first referred to is similar to that used in America and England.

In more remote and less up-to-date districts, the washing of the clay is done in very primitive fashion. The mixture is stirred up by hand in large tubs or vats, ladled out or drawn off as it settles, and finally passed through fine-meshed cloth sieves. Primitive filter presses are often found in which large rocks supply the pressure. The following analysis gives one an idea of the nature of the Japanese kaolin and clays.

		Shiga-yaki (Kyoto)		Owari (Sake)		Hizen (Arita)
S.O <sub>2</sub>	..	56.67	..	54.65	..	49.23
Al	..	28.56	..	32.35	..	38.89
Fe <sub>2</sub> O	..	0.98	..	—	..	1.14
Ca	..	0.69	..	0.90	..	0.15
Mg	..	0.47	..	0.37	..	0.36
K	..	2.08	..	3.27	..	3.01
Na <sub>2</sub> O	..	0.06	..	2.22	..	0.39
N <sub>2</sub> O	..	10.16	..	6.30	..	3.90
Total	..	99.67	..	100.06	..	98.09

The analyses of the Shiga and Owari clays are given by R. W. Atkinson in Vol. VIII, p.274-5, Trans. Asiatic Soc. Jap.; that of the Arita clay from Gumbel by Rein, "Industries of Japan."

*Porcelain Stone.* This material which appears to be somewhat similar to the English Cornwall stone, is believed to be produced by the action of solfataras upon volcanic rock (Broccia). It occurs in great deposits in the Arita district just north of Nagasaki. A very similar deposit is also found in Missouri. It is obtained from large quarries and for local use is reduced chiefly by means of clumsy stamp mills run by water power, like those for milling rice.

In the neighbourhood of Nagasaki is an island Amekusa, which supplies a great part of the porcelain stone used in other parts of the country, notably Nagoya. It is harder and heavier than the Arita stone and contains a high percentage of potassium. The larger Japanese factories get the porcelain stone in crude condition and attend to the grinding themselves. Revolving cylinders lined with porcelain brick and containing "German flint pebbles" are used.

The material contains little or no mica but consists of silicate of alumina in a physical condition between that of felspar and kaolin together with quartz sand and is in itself capable of being made into chinaware without further admixture of other materials. Commercially, however, this is not practicable because of the fact that the various percentages of ingredients are not uniform. It is also very susceptible to varying kiln temperatures and has a limited range of fusability.

This ground porcelain stone, however, is extremely valuable to the chinaware potters, because when combined with washed kaolin and ground felspar it produces a very satisfactory china body, there being sufficient free silica to take the place of the usual flint or quartz requirement.

It is perhaps the most expensive of the natural products of Japan used by the china manufacturers, costing twenty dollars per ton in its crude state or thirty dollars per ton including freight and the cost of grinding before it is ready for use.

(Table 2).

ANALYSIS OF VARIOUS JAPANESE PORCELAIN STONES.  
(Rein. (Industries of Japan).

	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	FeO <sub>3</sub>	CaO	KO	Na <sub>2</sub> O	N <sub>2</sub> O
Arita Stone I.	78.70	14.27	1.16	0.45	2.24	—	3.29
Arita „ „ II.	83.00	11.50	0.70	0.18	1.90	0.09	2.49
Amakusa „	73.87	15.25	0.73	0.43	5.46	1.07	2.23
Kutani „	76.60	14.75	0.86	0.29	3.91	0.65	2.68

All Japanese china-ware are made of one or more of these above described kaolins, but for the production of the whitest and finest china it has been found that English kaolin or china-clay must be used. This clay is mined and prepared in Cornwall, England, and costs the Japanese manufacturers approximately forty dollars per ton delivered.

The wages of the men employed in the preparation of these materials at the present time is sixty cents per day of twelve hours each.



*Felspar.* Felspar is found at the extreme northern and southern ends of the main island of Japan but that from Fukuoka is considered the best and gives the most satisfactory results. This felspar is of excellent quality. It is delivered to the large pottery manufacturers in its crude state.

The manufacturers are extremely careful in the selection and preparation of this material. The rock is first broken by hand and any impure materials showing on the surface are picked out. The material is then thoroughly washed in water and again broken into smaller pieces after which it is gone over in the most careful manner for the purpose of removing any particles of flint, tourmaline or other foreign substance. This selected material is then crushed into a much finer state under heavy stone "chasers" or mills. It is finally ground into an impalpable powder in revolving cylinder grinders, commonly known in America as the Alsing cylinder. This material when ready for use, costs the manufacturer about seventeen dollars per ton.

*Sagger Clays.* Saggars are a fire-clay receptacle or case into which the ware is placed for burning.

They are made of a crude fire clay, the chief requirement being high refractory quality and great plasticity. The sagger clays of Japan are inferior to those found in America, the plasticity being below that required for the best results. As a consequence there is a much greater percentage of loss in firing, approximately 40% of the saggars breaking in each firing.

The sagger clay fired by itself will crack readily in the fire. It is therefore necessary to add some other material to counteract the excessive contraction of this clay under fire. This is done in Japan as elsewhere by the use of crushed fired saggars, the old cracked saggars being broken up and coarsely ground to the size of a small pea as the maximum. In one of the largest factories in Japan eighty per cent of two kinds of sagger clays are mixed with twenty per cent of the ground saggars (a material which is technically known in the United States and England as "Grog"). There is perhaps a greater percentage of loss in this particular department of the Japanese china manufacture than in any other department.

*Fuel.* In the modern factories using the circular down-draft kilns a good quality of coal is required. This is difficult to secure in Japan. The coal used in the largest plant comes from Kyushu and costs the manufacturer laid down at his works in Nagoya approximately \$17 per ton (2,000 lbs) compared with a price of \$4 in 1914.

*Plaster of Paris.* Plaster of Paris is perhaps one of the most important of the indirect materials used in the manufacture of chinaware, since the molds in which the ware is cast are composed entirely of it. This material is manufactured locally, but the quality is such that for the best work, imported material is used. This comes from America. Its cost (December, 1919) was ¥19.50 per barrel of 224 lbs.



*Decorating Materials.* The bulk of the decorating pigments and the finest colors come largely from England, formerly from Germany. The decalcomania sheets which were formerly imported almost exclusively from Germany are now coming principally from America. Some are being made in Japan and it is likely that before long the domestic production will displace the imported article. The costs are about three times the former German price. Brushes are of course all of Japanese manufacture.

*Glaze.* In the old style Japanese potteries the glaze (called in Japanese *Kusuri* a generic term for medicine) is compounded of carefully prepared claypaste mixed with wood ashes (usually oak and chestnut). The details of the mixture are usually held as trade secrets. In the modern factories the same sort of lead glaze is used as in Europe and America.

### Methods of Manufacture.

*Delimitation of Subject.* As has been noted above, Japanese potters concerned themselves for centuries with the development of an art, the refinements of which are still for the most part an esoteric mystery to the Occidental. It is the essence of Japanese art to avoid duplication, either in design or in the object fashioned. In consequence in the development of an industry aimed to compete with western potters there has been of necessity either the establishment *de novo* of modern potteries on western lines as in the great Morimura works at Nagoya or the expansion and "commercializing" of an old established trade as at Awata in Kyoto (Kinkozan). It thus follows that the field to be considered from the western standpoint is much narrower than might be inferred by one familiar with the great diversity and amount of production of the native potteries of Japan.

We may omit from consideration here:—

1. *Art Objects* including those of utilitarian design, since this is a field in which America competes very little and in which it is impossible to classify, standardize or estimate costs.

2. *Wares* of porcelain or of other grades which are designed for domestic consumption. The habits of life of the Japanese are so different from those of the West that few if any of the dishes or other utensils appropriate to the one are adapted to the other. An apparent exception may be noted in the domestic market for "foreign" dinner sets, etc., which like foreign clothing are bought and used by the increasing but still very small percentage of the Japanese population that has taken up with Western ideas.

3. Exception may also be made of porcelain utensils, chiefly decorated teapots, cups, and small plates that are of Western utility but are produced by local potters in such small quantity that the consideration of them would not be germane to a study, the object of which is to compare Japanese conditions with those in the Occident.

There remain, therefore, the following classes of porcelain and semi-porcelain products, which are produced in quantity and enter largely into the export trade for which they are mainly manufactured.

- (1.) *Table Ware* including all the pieces comprised in ordinary "dinner-sets."
- (2.) *Sanitary Ware*, such as washbowls and other bathroom fixtures
- (3.) *Electrical Porcelain*, such as insulators, sockets, etc.
- (4.) *Toys and Novelties*.

*General Features of Manufactures.* In Japan more than in any other country in the world can be found methods of the most ancient type and within a very short distance methods of the most advanced and up-to-date type. The great bulk of chinaware produced in Japan is made by the old methods of manufacture and to a very considerable degree is a household or community industry. For example in the Seto district one family, young and old, will be found making the models and molds. On the village streets one can see these molds being carried by hand on boards to another household where they will be used for the forming of the ware. At the same time one will see another man or woman carrying the pieces that have been molded to the community kiln to be burned.

Cups and saucers are produced in large quantities in this district, one man being able to produce by casting two thousand cups per day. The quality however is very poor. The saucers are made from a mold placed upon a wheel which is turned by hand. In some cases, the potters wheel instead of being turned by hand is kept in motion by a boy who kicks the top of the wheel constantly in one direction as if on a treadmill. On these throwing wheels such articles as large bowls, pots and vases are formed by hand. In other houses men, women and children may be found making ware from plaster of Paris molds, the clay used being about the consistency of putty. Such articles as pitchers, sugar bowls, etc., are "pressed." Handles are pressed separately and stuck on the ware, so that in a community of this kind one may find various trades represented such as mold-makers, casters, throwers, pressers, and jigger-men, all working by hand.

When the ware is thus ready for burning it is taken to the kiln. All of the tableware undergoes two fires, the first being a low degree of heat known as the "biscuit fire" which thoroughly dries and hardens the ware so that it can be handled with safety and also enables underglaze decorations to be applied. The ware that has gone through the "biscuit fire" is dipped in a liquid glaze which is practically a liquid glaze composed of felspar, lead, clay, flint and in some cases a frit composed of borax and flint. Some wares such as the large sanitary ware pieces and electrical goods require but one fire, the glaze being applied to the surface of the unfired body.

The Japanese kiln of the old type is unique. They are built on the side of a hill in separate units according to the requirements of the



individual or the community. In some cases there is but one kiln which is built at the bottom of the hill. As the factory enlarges another unit is added to the side of the first kiln and at a higher level according to the incline of the hill. As the kilns increase in number they also become larger in dimensions. One set of kilns coming under our observation consisted of eight units, the top kiln measuring approximately thirty-five feet in length, fifteen feet in width and twelve feet high in the middle. The kiln resembles in shape the inside of the ordinary muffle or decorating kiln in the United States. The floor is usually covered with sand. The fire is not started until all the kilns have been filled with ware. The filling, firing and unloading of the kilns mentioned above consumed thirty days, each kiln requiring approximately forty hours in the firing. The fire is started in the kiln at the bottom of the hill. The heat enters the kiln from fire boxes which extend the entire width of the kiln, near the boundary between the two arches. Each has a draft hole half way up the side of the kiln above the hole where the fire is fed. The direct brunt of the heat is taken by a fire-brick wall. The flame and heat then circulating over the rounded roof of the kiln pass into the kiln next above through a series of openings on the level of the floor of that kiln. Thus the heat advances from one kiln to the other and the surplus from one kiln drying out and warming the contents in the following kiln. The kilns are fired wholly by the use of wood which is delivered to the kiln burner in bundles, each stick being about the size of a man's wrist and about fifteen inches in length. The kilns are fed from either side through a small hole less than one foot in diameter. This process is a continuous one, the kiln-tender standing on either end of the kiln continually feeding the fire a stick at a time. The steady demand for wood has stripped the adjacent countryside of forest until at the present time the cost of fuel is very high. Four bundles of wood altogether about three cubic feet, cost one yen, four times the pre-war cost. The firing of each furnace costs about 500 yen. A series of five, running up a hill therefore demands 2,500 yen (\$1,250) for fuel for each firing. As some series increase in size, the upper or larger kilns may consume as much as 700 yen worth of wood at a firing (forty hours).

The heat produced is intense, approximating a number sixteen cone. As each kiln acquires the desired heat the feeding is discontinued and the firemen proceed to the next kiln above, which has already acquired sufficient heat to ignite the wood. By the time the third kiln is fired, the first one has cooled sufficiently to permit the ware to be taken from it. These kilns are in fact a crude form of the German Hoffman kiln and no doubt suggested to the inventor that type of kiln.

As the ware is drawn from these kilns it is ready for the market, or for the decorating shop as the owner may select. Wares produced by community kilns of this sort are usually marketed through merchants in the central village.

In such a community we find potters of all degrees, from the individual making special articles and having them burned by the com-



munity kiln owner to the manufacturer who has his own shops and his own kiln or kilns. One establishment visited was making electrical goods, spark-plugs, sanitary ware and chemical porcelain ware.

Much of the ware most familiar to foreigners is seen in Yokohama, where it is retailed in the shops, city and also abroad, in quantity. This ware is really fashioned and biscuit-fired in the Nagoya district. It is then shipped to Yokohama where it is decorated and glaze-fired and is known in the trade as "Yokohama ware."

*Modern Pottery Manufacture.* The aggregate production of the numerous pottery villages in Japan such as have just been described amounts to a considerable figure and much of it, of course finds its way into the channels of foreign trade.

Nevertheless, with the cost of living increasing in Japan by leaps and bounds and with labour costs increasing in proportion, the day is not far off when the highly organized and efficiently conducted modern pottery with its labor-giving machinery and its ability to cut down costs by quantity production, will swamp out the cottage industry or community potters' system.

The Japanese have not been slow in appreciating this tendency. In Nagoya, the center of the industry in Japan, there has been built a modern pottery on the most up-to-date lines.

This factory was visited in response to an invitation from its executive officer and ample opportunity was given for the most careful inspection and every courtesy was extended by the officials in charge. Its capacity is indicated by the number and size of the kilns and the number of operatives employed. There are in operation twenty-eight modern double deck down-draft kilns, 19½ feet in diameter, thirteen feet to the shoulder in the lower chamber and nine feet to the shoulder in the upper chamber.

The number of employees on the pay roll in August 1919, was as follows:—

Boys under 17 years of age	..	..	..	363
Men over 17	..	..	..	2,230
Girls under 17	..	..	..	133
Women over 17	..	..	..	398
Total	..	..	..	3,124

These facts place this factory among the largest potteries in the world.

Upon entering this modern plant one is at first struck with the fact that labour is still by no means the first and greatest element of costs. Every ton of material is brought to the factory by man-power. There is

no railroad siding. All the materials, bulky as they are in the pottery industry, such as clay, felspar, flint wood and coal are carted in small one-horse wagons, each horse being led by a man. Such materials as come in bulk are piled on the wagon in shallow tray-like baskets, each containing an amount convenient for a man to carry.

The second thing particularly noticeable is the large amount of hand labor employed in the breaking up and sorting of the raw materials and also the exceedingly minute care taken in removing any foreign matter from the broken mass.

*Sagger making* is the fire-clay case or box into which the ware is placed for burning. They protect the ware from the flame and sulphurous gases arising from the burning coal which would seriously injure the glazing of the ware. In the old style kilns they were used very little, but now-a-days their use is very common in all kilns even those using wood.

Setters are fire-clay disks or very low saggars capable of holding but one plate or dish. These are used in the second or glost fire for the purpose of keeping flat-ware such as plates, meat dishes, etc., straight as each piece of ware rests upon its own foot or bottom.

These saggars and setters are made in large sagger machines varying in size according to the size of the article required. These machines consist of steel dice which squeeze the clay into the desired shape, the pressure being applied by a screw press.

The sagger room in this pottery is perhaps the largest room of its kind in the world. It contains six pug mills, large power-driven sagger presses and fourteen small hand driven presses.

The body of the sagger is composed of a mixture of one or more kinds of fire-clay to which a percentage of ground saggars is added. This mixture is made by shovelling upon a floor eighty per cent. of the combined clay to twenty per cent. of the ground saggars technically known as *grog*. Water is sprinkled over the mass and the whole mixed together by a shovel. It is then thrown into a mixing machine known as a pug-mill where it is subjected to the action of a series of knives upon an upright shaft. In the pugmill it is also pressed together into a compact mass and forced out of the bottom of the machine by pushers. The sagger mixture is then ready for molding into shapes, according to the size and kind of sagger or setter desired.

*Method of Forming the Ware.* The same method used in other countries for the making or forming of the wares is in vogue in this factory, namely pressing, casting, hollow-ware jigging, flat-ware jigging, throwing and turning. The casting process is more largely used than that of pressing. Those engaged in this work are very expert, and highly efficient. Jiggering is a newer method for the Japanese and the efficiency is not so great as in other countries, especially in the making of plates. There seems to



be great difficulty in producing plates which will retain their shape in the kiln and when an attempt is made to speed up the production from the jigger greater loss is the result. In the making of plates the modern spreader is used in forming the bat. There is no batting-out or batting block to be seen. The drying rooms are not as conveniently located as in the modern American factory.

Extreme care is taken in the inspection of the clay ware. Such ware as is likely to develop a crack is carefully tested with water. This was noticed in the inspection of salt sifters, the foot of which is likely to develop a crack in the process of drying. These cracks when present are imperceptible in the white clay state but when placed on a damp cloth they become visible. Such goods are cast into the waste pile and sent back to the slip house. Another point in which great exactness is obtained is that of weight. In countries where the duty is based upon weight and also where the weight is an important element in connection with transportation the weight of each article becomes an important matter. The ware is tested therefore carefully for weight, small objects such as pepper sifters being weighed individually by a boy and the heavy ones rejected.

*Biscuit Firing.* The French method of firing ware is used in Japan, that is to say, an easy biscuit and a high temperature glost.

The ware when ready for the first fire is taken to the second floor and placed in the upper chamber of the kiln. It is then piled on tiers of bats supported by heavy clay props, as is usually done in the decorating kilns in America. The central part of the kiln is used for burning the saggers in their clay state. These are piled up from the floor to the roof of the kiln.

*Modelling and Mold Making.* The process of modelling, blocking, casing and mold-making is identical with that used in other countries.

*The Slip House.* Every modern appliance is to be found in the slip house of this establishment. Large double mixing vats or blungers are used for mixing the body materials. On an elevated concrete platform is a row of large ball mills or Absing grinding cylinders. These are used for grinding the felspar, the rock clay and the glaze.

The body mixture being thoroughly "blunged," flows from the bottom of the blunger to the sifting lawns. These are of two types, the rotary lawn and the knocking type. The slip runs into agitators under the floor and is pumped by the most modern hydraulic pumps into iron presses. The clay is then put through a pug-mill of which there are several in the slip house. In this condition the clay is then used for the making of high tension insulators. That clay, however, which is to be used for the making of the china table ware is further manipulated by the use of the French revolving pressure pug-mill.

*Glazing.* The ware as it comes from the first fire is sufficiently burned to



be entirely safe in handling but can be easily broken between the thumb and finger. It is glazed in the ordinary way by dipping it in tubs of thin liquid glaze. The ware dries rapidly and is ready for the second fire after the bottom and the edges of the cups have been cleaned of glaze to prevent sticking in the second or glost fire.

*Glost Fire.* The same methods of placing the ware are in use in this factory as are used in china factories in France. The plates, dishes, and flat ware are placed in separate sagger setters. All cups and bowls are put on rings, which, however, are placed on the bottom of the sagger and are not boxed as is customary in France. The plate setters are so evenly made that it is not necessary to fill in the edges with clay when fired.

The fire of the glost kiln attains a heat equivalent to a No. 17 cone. These cones are made and supplied to the manufacturers by the Tokyo Kogyo Shikenjo. (Tokyo Industrial Laboratory.) The drawing of the ware from the kiln is done with great care and rapidity. The unusual rapidity is induced by the fact that the man in charge is given a bonus for every hour saved.

*Selecting and Polishing.* The warehouse work in connection with this plant differs in many respects from work of a similar kind in other parts of the world. Every piece of ware is carefully inspected and sorted and placed in four groups according to quality; namely, first, seconds, thirds and job lots. About ten to fifteen per cent. are firsts, twenty five per cent. seconds and thirty five to forty per cent. thirds. Only firsts are exported. Articles of a kind such as cups, plates, etc., are placed in separate wooden boxes convenient for handling and stacking, measuring two feet long, eighteen inches wide and one foot deep. The ware after leaving the polishers' hands is then ready for the storeroom into which it is carried in the same boxes and stacked for further requirement. As each box is distinctly labelled, handling and breakage are reduced to a minimum.

Fifty or sixty persons, mostly girls are employed in the polishing room. In addition to the American perpendicular power-driven whirler for polishing the rims of such pieces as sugar-bowl, tea-pots, etc., and lathes or horizontal wheels for buffing the edges of cups, much use is made of small wheels mounted on flexible shafts such as are used by dentists, for the polishing of imperfections otherwise difficult to reach.

*Decorating.* Such ware as is intended for decoration is taken at night into the decorating workshops ready for the decorators in the morning. The decorating processes are similar to those in use in America and other countries, including decalcomania transfer work, printing and filling in, hand painting, ground-laying, hairbrush tinting, gold paste work, gilding, and etching. The dinner ware is decorated largely by mechanical processes but very large quantities of decorative ornamental wares are hand painted.

*Standardising.* The ware after being decorated is again carefully inspected and tested to standard samples. This establishment has introduced a novel method of standardising its product. The original pattern sample is carefully labeled and kept in a room set apart for that purpose. Each piece, before packing for shipment is brought to this department and compared with the sample from which the purchase was made. This effort is made for the purpose of overcoming the reputation attached to many Japanese products abroad, namely, that while the first shipment of Japanese goods may be satisfactory, subsequent shipments are frequently inferior in quality to the original one.

*Packing.* When the ware has been sorted and examined it is taken to the packing establishment. It is first wrapped in paper then taken to another room and packed in cardboard boxes wrapped in excelsior, each box being tied and labeled. It is then packed in large wooden cases and marked for shipment. These wooden packing cases, as well as the cardboard boxes are made in the establishment. It is particularly interesting to observe the great rapidity with which these wooden boxes are put together. The explanation seems to lie in the fact that they are made, piece work.

In drawing the kilns and in some other sections of the establishment great speed is obtained by making it financially remunerative to the workmen. In general, however, throughout the factory work is done on a time basis rather than by piece work, the explanation being found in the fact that otherwise the operators slight their work and the percentage of rejects increases too rapidly.

*Costs.* The costs of production for the years 1917 and 1918 are as follows:—

#### White Ware Costs.

	1917	1918
Materials .. .. .	20.6%	22.6%
Coal .. .. .	25.7%	26.2%
Wages .. .. .	39.2%	41.0%
Overhead and expense .. ..	14.5%	10.2%

#### Decorating Costs.

	1917	1918
Gold .. .. .	17.8	16.5
Colors and materials .. ..	11.0	8.2
Fuel .. .. .	38.5	41.4
Overhead .. .. .	23.4	18.2

#### WAGES (1 yen = \$0.50 approximately).

Girls under seventeen from	y0.60 to y1.30 per day	
.. over	y0.90 to y1.30	.. ..
Men under	y0.60 to y1.25	.. ..
.. over	y1.20 to y2.00	.. ..



To these figures must be added 40 sen a day as a rice stipend, to equalize the present high cost of living.

NOTE. The following are some of the present selling prices of the Seto ware. Cups and Saucers—Saxon shape, gold lined y1.20 to y1.30 per dozen.

Red print ware over-glazed y1.30 per dozen.

(Seconds) red print ware over-glazed y0.95 per dozen.

These goods were formerly sold for y0.36.

Plates blue and white five inch y0.60, six inch y0.95, seven inch y1.40. Cups and saucers y1.30 per dozen F. O. B. Nagoya. Similar cups and saucers first and seconds mixed from Mino district y1.05.

Selling prices advanced in 1919 to eighty per cent. above 1916 prices. 1920 will see another advance over 1919 prices of 35%—50%.

*Sanitary Ware.* Japanese houses are not constructed with reference to community sewage systems and the field for the wide range of sanitary porcelain with which the West is familiar, is very limited. The Japanese bath tub, for instance, is almost invariably of wood. Nevertheless an increasing use of wash stands and closets is to be observed especially in the large cities. (Even the capital has no sewage system).

Such ware as is produced is made for the most part in small factories, moulded by hand. The formed ware is thoroughly dried, glazed in the clay state and fired but once in muffle kilns, being placed on clay bats and held up by thick clay props. English and American models are copied, but there is little likelihood of the ware entering into the export trade, both on account of its bulk and weight and also on account of the fact that it is not likely to be gauged to standard sizes of pipes and joints to which at least American plumbers are accustomed.

The writer while in Seto observed a man making square wash stands about 15 inches in dimension. He turned out four a day at a wage of y1.30 (65 cents).

Very beautiful tiles are made in Japanese Potteries both in white and in colors and their use is increasing, but such a thing as a tiled bathroom is exceedingly rare.

*Electrical Porcelain.* One of the newer developments in the Pottery Industry is the manufacture of electrical accessories in connection with the rapidly expanding electrical industry in Japan. The large high-tension insulators demanded by hydro-electric development are made both in large factories such as the great Morimura plant at Nagoya and also by small individual workshops (on sub-contracts) in villages.

The large pole insulators are thrown on an ordinary wheel which usually is motor-driven. When shaped they are passed to a second man who turns them to size with a tool. Finally they are carefully



finished by hand before drying. They are glazed in the clay and fired once. One man carrying through all the processes will throw, turn and finish 400 in a day, for which he gets about ¥1.70 (including a rice stipend).

Smaller white porcelain goods, insulators, cleats, rosettes, etc. are for the most part manufactured in Japan in the households alongside of dolls and teapots. They are moulded in plaster of Paris moulds with a lavish expenditure of time and energy from clay purchased ready for working and fired in community kilns. With practically no overhead such small manufacturers are able to compete successfully with modern factories. In fact, one large establishment which put in an insulator factory has been under-cut in price by the small independent potters to such an extent that it has almost ceased to do business.

As a means of comparison with Western methods may be instanced the writer's observation of a village potter who was making  $5\frac{1}{2}$  split knobs. These were formed in moulds, the central hole being punched out with a stick; the potter made about 400 in a day earning thereby ¥1.20 to ¥1.30 (60-65 cents).

Prices at the factory in October, 1919, for various items were as follows:—

Two piece ceiling rosette  $2\frac{1}{2}$ -in. screw thread,  $7\frac{1}{2}$  sen to  $8\frac{1}{2}$  sen; cleats 1.4 sen a pair; solid knob, ¥5 1.20 yen to 1.30 yen per hundred (an advance of 60% over 1916.) ¥3 ditto. 2.50 yen per hundred; split knobs 1.60 yen per hundred.

Laboratory porcelain such as crucibles of very good quality is being turned out in several places in Japan, but the manufacture is still in an experimental stage and the cost of manufacture relative to market price is yet to be determined. It is very doubtful if Japan can compete in this field with European manufacturers in the matter of price.

*Dolls and Toys.* Dolls are made in nearly all the pottery centres of Japan along with other porcelain wares of every description. Few if any factories of any size devote themselves to the exclusive production of such goods. The bulk of the product is fashioned in the homes, the whole family, young and old, participating, each according to his (or more often, her) ability. The clay is purchased ready for working and the pieces are fired either in a community kiln or in that of a local potter. The work is largely farmed out by a series of small sub-contracts and it is extremely difficult to estimate costs. The world demand for toys during the war due to the lack of German goods, has stimulated the production of Japanese toys. A large amount of "Kewpie" dolls in particular are now made in Japan.

Heads, arms, legs and bodies are molded in plaster of Paris molds and the cost of production is materially lowered by the skill which

children display both in assembling the parts and in decorating. One establishment in Seto devotes itself almost wholly to the manufacture of kewpies, with a production of 1,000 a day. The factory cost of a 6-inch doll of this sort is approximately 5 sen for the body and 5 sen for the decorating, total 10 sen or 5 cents gold. The adult workmen average y1.30 per day.

The following table gives the production and export of porcelain toys in Japan, 80% of which are made in Nagoya district.

TABLE V.  
*Production of Porcelain Toys in Japan.*

1910	..	..	..	..	..	\$298,528
1911	..	..	..	..	..	283,287
1912	..	..	..	..	..	309,071
1913	..	..	..	..	..	339,241
1914	..	..	..	..	..	279,905
1915	..	..	..	..	..	440,288
1916	..	..	..	..	..	707,115
1917	..	..	..	..	..	715,076
1918	..	..	..	..	..	1,126,834

(Reprinted by permission from the "Pottery Gazette" 1st July, 1920).

## The Manufacture of Pottery in Japan.

IN a report to the U. S. Pottery Manufacturers' Association, on whose behalf he recently made a tour to China and Japan, Mr. Wm. Burgess says: Two characteristics of the operatives employed in the china and pottery industry particularly impressed me. First, their great respect, almost that of reverence, for their employers and factory officials; and second, the power of imitation but the lack of initiative both on the part of the operator and the workman.

The industry is scattered throughout Japan, the principal centre, however, being Nagoya and the surrounding country. These various plants manufacture different grades and kinds of pottery ware according to the character and quality of the raw material found in the immediate neighbourhood. The industry can be divided into two general groups according to the method of manufacture; namely, the ancient and common method of making the ware and the modern and up-to-date method.

Let us first consider the materials from which the product is made. The products of what is commonly known as the Nagoya district, embracing the provinces of Mino, Owari and the Kutani region, have been known and produced for centuries and to-day comprise about two-thirds of all the porcelain and earthenware made in Japan. "Setomono" is the generic name for chinaware, and derives its name from one of the most ancient centres in the district—namely the town of Seto in Owari, Aichi Prefecture. Pottery has been made in this district and from the china clay found there since 1230. The china clay or kaolin found in this district is known as "gairome" clay. A similar grade is also found in the neighbourhood of Tajimi and Tokitsu in the Prefecture of Gifu. These deposits are of wide extent and are primary clays, being decomposed granite rock. The mass contains from 10 to 20 per cent. of kaolin. It is claimed to be more plastic than the kaolins found in Germany and Austria. It varies in colour from ashy white to almost a buff yellow—its fusibility depending upon its varying composition running from Seger Cone, 30 to 32.

The following analysis is a fair average of these kaolins, particularly that of the Seto district:

SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	MgO	K <sub>2</sub> O	Na <sub>2</sub> O	Loss	Total
55.00	31.02	1.18	1.06	.27	.14	.65	10.68	100%



A recent discovery of an extensive deposit of kaolin has been made at Shimotamuke in the Gifu Prefecture. It is reported to have a much larger percentage of kaolin in the mass; as much as 30 per cent. has been obtained.

Next in importance to the gairome clay are those found at Mino and Owari in the Kutani region. The products of these clays are not so good as that above referred to, and in making the better wares, the factories in this location use some of the Seto clay.

The following chemical analysis indicates the character of the various clays, or as some of them are called, "china stone." These clays vary in colour, as the analysis will show:—

Nabetani clay									
SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	MgO	K <sub>2</sub> O	Na <sub>2</sub> O	Loss	Total	Colour
61.02	29.49	.05	.58	.24	3.78	.60	4.24	100%	Bluish
Hanasaka stone									
73.04	17.36	.04	.12	.21	5.78	.29	3.16	100%	Yellow
Gokoji stone									
70.11	19.75	.83	.23	.16	1.60	.23	7.09	100%	Yellow
Shorenjistone									
68.47	18.93	.60	.29	.50	6.96	.28	3.97	100%	Yellow
Shin Nabetani clay									
81.16	13.67	tr.	.12	tr.	3.11	.15	1.79	100%	White
Suginomiza stone									
80.35	9.94	.22	2.65	.10	2.97	.10	3.67	100%	White
Aratani stone									
78.10	13.54	1.02	.57	.10	5.95	.19	1.53	100%	Light brown

Besides the above clays, there is another material which is commonly known as rock clay, or the Amakusa clay, and is found in the Amari district, from whence comes the famous Amari ware. This substance is very hard, being similar to a certain clay found in Texas. It requires to be crushed and ground. It is not very plastic, but is a self-contained body requiring but to be pulverised and mixed with water to make a good slip body and fair quality of translucent china.

I visited two kaolin mines and washing establishments, and found the process similar to that used in the plants in our own country. The material is mined generally by the tunnelling process, and bulged and pressed in ironclay presses as is done in the United States. The high cost (\$18 per ton) of this material is accounted for by the low percentage of kaolin in the mass, amounting on the average, at the mines visited, to not more than 16 per cent. The nearest of these kaolin mines is about 25 miles from Nagoya. The best pottery clay there is known as the Yamaguchi kaolin. The next best, coming from a greater distance, is the Tokiguchi kaolin.

The wages of the clay miners and washers have increased greatly during the past five years, so that at the present time a journeyman operative earns 60 cents per day of 12 hours. Odd men and helpers get from 40 to 50 cents per day.

In the manufacture of the finest grades of chira in the modern Nagoya plant, English china clay is used. At the present time this clay costs \$40 per ton, f. o. b. Japan.

Feldspar is obtained in the immediate Nagoya district, and comes from Sanageyama in Aichi Prefecture; Tajimi and Naegi in the Gifu Prefecture; and Tanakamiyama in Shiga Prefecture. Seto and Tokitsu feldspars have been used for inferior qualities of pottery. There are also feldspar deposits in Kise in Mikawa Province, Aichi Prefecture. The best quality of feldspar used in the making of the superior grades of porcelain ware at Nagoya come from Ishiwaka, Fukushima and Yuzabara Tsuruyama and Akamura in Fukuoka Prefecture. There is also a fair quantity found at Tadotsu, Sanuki and Shikoku. The chemical analysis of the first-mentioned feldspar from Ishikawa is as follows:—

SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	MgO	K <sub>2</sub> O	Na <sub>2</sub> O	Loss	Total
65.06	18.72	.65	.37	.21	10.84	3.06	1.09	100%

The cost of the best feldspar at the present time is equal to \$17 per ton, f. o. b. factory. As far as I was able to learn and observe, each factory, or in the case of the house industry, each little group of factories has its own crushing and grind mills, buying the feldspar in rock form. Rock quartz is found almost always in the same general district as the feldspar, and comments on feldspar are true also of quartz. There is not a great quantity of flint used in the manufacture of china bodies. The rock clay containing the larger percentage of silicon takes the place of the free ground flint to an extent. There are other sources of supply of feldspar and quartz, namely, from the Islands of Hakuho and Amishima, Ehime Prefecture.

Perhaps the most unsatisfactory material used by the Japanese potters is the saggar clay. It is of inferior quality and comparatively low in plasticity—some of the larger factories reporting as high as 5 per cent. loss in firing. Their main local dependence is the Kibushi clay used both for fire clay purposes and the making of saggars. It is also used in the making of fireproof earthenware. It is found principally in the vicinity of Seto, Aichi Prefecture, and to some extent at Ueno, Iga Province, Miye Prefecture. This Kibushi clay runs from a grey to dark brown in colour. Its chemical analysis is as follows:

SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	MgO	K <sub>2</sub> O	Na <sub>2</sub> O	Loss	Total
50.27	34.23	.52	.57	.53	1.12	.08	12.58	100%

In the vicinity of Takahamamachi and Tokoname, both in the Aichi Prefecture, can be found other clays suitable for the manufacture of tile, fire brick, etc. Recently, I understand, a Japanese potter has discovered in Manchuria or in the Kwantung territory a superior quality



of saggar clay. The whereabouts of this, however, is being kept a profound secret.

The import figures into Japan of clays of various kinds is interesting; as follows:—

Country of Origin	1915 lbs.	1916 lbs.	1917 lbs.	1918. lbs.
China	5,703,175	16,267,908	21,273,684	1,701,674
Kwantung	7,139,165	28,305,363	19,933,800	6,892,036
French Indo-China	11,287	2,907,996	5,592	37,520
Great Britain	140,114	1,342,584	118,147	831,531
Germany		345		
United States	367,359	542,429	678,352	285,237
All others		26	2,176	198
Total pounds	13,361,100	49,366,651	42,011,751	9,748,196

The moulds are made in the same way and from the same materials as they are made in the United States, the plaster of Paris coming from the same American sources as furnish the United States potters. There has been no supply of gypsum discovered in Japan. Large quantities of gypsum, however, are imported from Alaska and also from China.

It was, of course, impossible to secure the exact formulas for the mixing of either the bodies or the glazes, but I was able to observe and learn that there was a great variety in the glazing materials, some glazes being similar to the French and composed largely of feldspar, clay and whiting, while others made of fritt of borax and flint and also used lead, zinc, and whiting from the United States.

Both coal and wood are used for firing purposes. The modern plants having the regular circular kiln use coal, whereas the old type factories or pottery communities using the banks of kilns built on an incline generally on the side of hill, use wood exclusively. For decorating purposes wood is used to a very large extent, being at the present time cheaper than coal.

The pigments constituting the body of decorating materials of the finest finishing materials come largely from England, formerly almost exclusively from Germany. Decalcomania sheets, formerly imported exclusively from Germany, are now coming largely from the United States. They cost more than three times as much as the former German cost. Previous to 1914, a Japanese lithographer and printer, who formerly made decalcomania sheets in a small way devoted himself entirely to this branch of the business. In four years he increased his business from \$14,944, to \$79,760, of which amount the potteries of Nagoya consumed \$49,850 worth—the sheets 16 by 21 inches costing the potteries 20 cents each. This man is also producing his own printing paper. He secures most of his colours from France.

A comparison of the increased cost of materials and labour secured from one of the largest factories in Japan will give the reason for the



necessary increase in the selling price of the Japanese product. This increase in selling price being 80 per cent. over the prices prevailing in 1916:—Amakusa stone (per 100 lb.), from \$0.30 to \$0.96; Gairome kaolin (per 100 lb.), from \$0.598 to \$0.90 to \$1.02; Kibushi clay (per 100 lb.), from \$0.0957 to \$0.24 to \$0.30; feldspar (per 100 lb.), from \$0.156 to \$0.24; quartz (per 100 lb.), from \$0.15 to \$0.48; plaster of Paris (per 100 lb.), from \$1.26 to \$3.59 to \$4.79; English kaolin (per 100 lb.), from \$1.196 to \$2.00; coal (per 2,000 lb. ton), from \$3.77 to \$17.00; labour (average daily rate), from \$0.29 to \$0.70.

The great bulk of china ware produced in Japan is made under the old method of manufacture and to a considerable degree is a house industry or a community industry. For example, in the Seto district can be found one family, with more or less assistants, making the models and moulds; another making cups and saucers by casting; another making hollow ware by throwing and turning, that is, they throw the ware on the wheel and turn it after having thrown it while still on the wheel. In another house or shop you will find the family making the ware by the pressing process. This, however, is done to a very limited degree. In several places you will find the house extended into quite a little shop where they make the complete tea sets by casting. The well-known Phoenix pattern and similar underglazed blue Japanese designs are decorated by the ordinary printed process upon the clay body, afterwards being fired at a low temperature and glazed in the second fire. These kilns are similar to large decorating kilns. In the first fire the ware is placed on clay batts, held up by clay props. In the second fire, however, the ware is placed in very small saggars and the heat carried to it from 15 to 17 cone. White cups and saucers are produced in very large quantities in these outlying districts, one man being able to cast 2,000 cups per day. The saucers are made by hand from a mould placed on a whirler which is turned by hand.

The ware is generally glazed in the dry clay state and carried to the community kilns, which, as already stated, are built on the side of a hill in banks of from 2 to 8 or 10 kilns. It is a little difficult to describe intelligently these kilns, but each individual kiln resembles on the inside an ordinary muffle or decorating kiln of very large dimensions. These kilns vary somewhat in size (those I measured were 30 feet long, 15 feet wide and 12 feet high). The fire is started at the bottom of the hill which is kiln No. 1. The heat enters the kiln through fire holes the entire length of the kiln, the direct brunt of the flame being taken by a fire-brick bridge wall. The flame and heat then circling over the rounded roof of the kiln passes into kiln No. 2 through a series of openings about one-third of the kiln higher than where the original heat entered on the side next to the fire holes. Large logs of wood are used in this initial fire, but when the heat is sufficient in the inside of the bridge wall to ignite the wood, the fire is sustained and increased by the throwing in, from either end of the kiln, sticks of wood 15 inches long and about 2½ inches in diameter. The fire is fed through small apertures less than one foot in diameter at either end of the kiln. The wood is delivered at the kiln in bundles each containing about two cubic feet. The expert

firemen, one standing at each fire hole, very dexterously throw the wood into the flame one stick at a time. This process is a continual performance, one stick being thrown in about every 30 seconds. These men become extremely skilful in this particular work. The heat produced is intense, approximately, as stated, from 15 to 17 cone.

After each kiln acquires the desired heat, the feeding is discontinued and the firemen proceed to the next kiln above, which has already acquired sufficient heat to ignite the wood. By the time the third kiln is fired, kiln No. 1 has sufficiently cooled off to permit the ware to be drawn. To all intents and purposes these kilns are a crude form of a German Hoffmann kiln, and no doubt suggested to the inventor what is commonly known to you as the Hoffmann kiln.

In these communities I found great varieties of goods being manufactured. Besides the tea ware and fancy articles, there was very creditable sanitary ware produced, a very fine quality of chemical porcelain, large quantities of dolls' heads and a great variety of vases and fancy articles.

The slip house facilities in some of these establishments were very interesting. The bodies were mixed in a tub stirred with a wooden paddle. This slip was then poured into large stone jars and permitted to settle to the required degree of density for casting purposes. When the clay was desired to be put in pressing condition it was allowed to remain a still longer time and the water removed from the surface, the thick slip was emptied to the earthen tubs and thus greater density was arrived at. At the end of several days when all the surface water was removed that could be, the remaining very thick slip was placed in canvas bags, these bags in turn being placed in slatted boxes one on top of the other, the whole being covered with a lid and weighted down with heavy stones. This you will recognise as the original clay-press.

Although there are a number of small old-fashioned pottery plants in Nagoya, yet the larger number are located in the outlying districts. They are controlled largely by Guilds. A few figures will indicate the character and size of some of these communities. The Seto Pottery Guild is made up of 63 members who employ in the neighbourhood of 5,000 hands. They produced, according to the latest available figures (1918), \$870,226. The individual production of the principal makers is as follows:—Gosuke Kato, \$70,912; Giehei Kato, \$37,373; Bunju Kato, \$35,563; Nakajiro Kato, \$35,174; Nobutaro Kato, \$32,403; Gorobei Kato, \$31,877; Kenjiro, Kawamoto, \$26,014; Sukesaku Kato, \$24,117; Kamakichi Nuguchi, \$20,885; Murssaburo Kato, \$20,518; Harumitsu Kato, \$20,518; Sakusaburo Kato, \$18,921; Seiitsu Kato, \$18,320; Ginjiro Mizuno, \$17,587; Kyutaro Kato, \$17,438; Seinosuke Kato, \$16,862; Matsujiro Kato, \$16,121; Keitaro Kato, \$15,635; Matsu Kato, \$15,389. The products of this district are chiefly small articles, such as tea cups and saucers, plates, rice bowls, toys, with some sanitary ware, and also some chemical porcelain ware. About 40 per cent. of this entire product is exported, chiefly to America,



China, and the South Sea Islands in the order named.

Large quantities of pottery products from the Toko-name district come to the United States in the shape of ornamental wares. They are made from the clays underlying the rice fields of Kaminoma-mura.

The Tokanabi ware, as it is called and known in this country, is similar, but having a larger percentage of iron burns a dark brown or metallic black. The following is a list of these manufacturers with the number of their employees and their output:—Hatsunojo Ina, employees, 90; products, water pipes; annual output, \$149,550. Pottery Manufacturing Stock Company, 50; figured bowls; \$36,889. Kazaemon Sugie, 30; figured bowls; \$9,970. Japan Potteries Company Ltd., 25; figured bowls; \$7,478. Toyokichi Soki, 20; figured bowls; \$6,979. Zenemon Kinugawa, 20; figured bowls; \$6,480. Ichi Midsuno ("Marugo"), ornamental ware; \$14,955. Y. Mizuno ("Maruyoshi"), ornamental ware; \$4,985. K. Ishii ("Marudai"), ornamental ware; \$3,489. Chujiro Takeuchi, ornamental ware; \$2,991. Seick-ichi Nukaya, ornamental ware; \$2,492.

The Inuyama district produces ware made almost entirely in these separate homes. It has not a large output, but consists chiefly of earthenware, tea sets, teapots, bowls and other small articles. The finished article is generally a cream colour or a grey body, the decorations running largely through characteristic designs in red, blue and green.

The Tajimi district in the Province of Mino in the Gifu Prefecture, produces quite a variety of goods such as plates, teas, coffees, tea sets, rice bowls, etc., and decorated in various ways, but running principally to copper plate designs. In this district the inferior imitations of the celebrated Arita or Imari ware are produced.

Decalcomania prints are also used in one small town, Dachi. The principal members of the Tajimi Pottery Guild are, and their output is, as follows:—Suzukuro Kato, \$174,475; Hichisaburo Tomita, \$174,475; Ruyto Kato, \$62,213; Tokusaburo Kato, \$49,850; Sakujiro Kato, \$49,850; Sadao Shimizu, \$49,850; Junzo Ino, \$37,388; Sawakuro Taniguchi, \$32,403; Umekichi Ito, \$9,970. About 2,000 persons are employed in this district.

The Kutani district produces some of the most famous and beautiful ware found in Japan. They make a great variety of useful and ornamental wares. A great deal of hand painting is done in this district and exquisitely painted designs requiring the most careful manipulation. The combination of colours is very unique, producing designs in brocade effect and combined with gold, and also designs in blues and reds. Japanese connoisseurs value these products very highly. The Kutani Guild is one of the most conservative and consider themselves above the ordinary pottery manufacturers. In their decorations they use exclusively coin gold and this is one of the requirements of membership. The use of liquid gold by any member is sufficient reason for expulsion from



the Guild. The principal cities for the making of the ware are Teraino-mura, Nomi-gun and neighbouring villages. The painting and art work is done largely in Daishoji, Komatou and Kanazawa. Kanazawa is the chief market place. The following are the principal manufacturers and distributors of ware in the city of Kanazawa:—Nikichi Kurota, 55, Yasue-cho, Kanazawa, Ishikawa (annual output) \$29,910; Yojuro Kuwata, 482, Kami Murumi-machi, Kanazawa, Ishikawa, \$7,178; Yoheiji Nakamura, 49, Kasaichi-cho, Kanazawa, Ishikawa, \$6,979; Kanji Matsubara, 39, Ishivakoji, Kanazawa, Ishikawa, \$6,730; Tahei Kaburagi, 10, Shimotsutsumi-cho, Kanazawa, Ishikawa, \$6,480; Bizan Shimizu, 25, Hirasakadori, Kanazawa, Ishikawa, \$5,982; Tokuhisa Moroe, 43, Katamachi, Kanazawa, Ishikawa, \$5,982; Taniguchi Company, 6, Katamachi, Kanazawa, Ishikawa, \$4,985; Tokugi Takata, 1, Kinoshinbo, 7, Bancho, Kanazawa, Ishikawa, \$4,736.

A particularly interesting class of wares is produced in this district by the Dai Nippon Koshitsu Toki Kaisha (Japan Iron-Stone China Company), located at Nagamachi, Kanazawa. This ware is particularly strong and resembles, to an extent, the very tough American hotel porcelain. This company employs over 800 hands and produces annually between \$450,000 and \$500,000; about 20 per cent. of this output is used by the Japanese army and navy.

At Shigaraki the industry is a household one—about 100 families are engaged in the work and produce about \$375,000 annually. This ware is made of local clay, burns a dull yellowish colour and is very cheap. It is an excellent ware for cooking purposes. Travellers in Japan note at every large station boys selling tea, while you wait, and serve it in teapots from this district. You can purchase the teapot, whose cover is a small cup, filled with tea for 2½ cents. This includes the price of the teapot and cup if you desire to take it home; if not it can be left on the train.

Yokkaichi and Kukana, in Miye Prefecture, are other towns from which the celebrated "banko" ware comes. These products are largely fancy goods of various kinds—smokers' sets, doll heads, and ornamental articles—increasing importations of which are coming into the United States. The principal makers of these goods are:—Kawamura Gumi Goshi Kaisha, Naka-machi, Yokkaichi. Tomoegumi Goshi Kaisha, Hamaishiki, Yokkaichi. Tsune-kichi Ito, Hamaishiki, Yokkaichi. Kataro Ito, Hamaishiki, Yokkaichi. Kanekichi Yamada, Hamaishiki, Yokkaichi. Torakichi Ota, Hamaishiki, Yokkaichi. Yoichi Sakahura, Hamaishiki, Yokkaichi. Tomisaburo Hanai, Suenaga-machi, Yokkaichi.

Now let us turn to one of the most modern and up-to-date pottery plants I was ever in. There is in operation, at the present time, 28 modern double-deck down-draft kilns, 19½ feet in diameter, 13 feet to the shoulder in the lower chamber and 9 feet to the shoulder in the upper chamber. The French method of firing is used, that is a very light biscuit and a hard gloss. At the time I visited this plant, there were

employed 365 boys under 17 years of age, 2,230 men over 17 years of age, 133 girls under 17 years of age, and 398 women over 17, a total of 3,124 employees. This was almost a thousand below the full capacity.

This factory was visited in response to an invitation from its executive officers, and ample opportunity was given for its most careful examination, and every attention was given by its executives in charge. Upon entering this model plant one was at first struck by the fact that labour was by no means the first and great element of cost. Every ton of material of every description was brought to the factory by man power. There was no railroad siding, all the materials, bulky as they are in the pottery industry, are carted in small one-horse wagons, each horse being led by a man on foot, and such materials as come in bulk were piled on the wagons in shallow traylike baskets each containing about two scoop shovels of material.

The second thing particularly noticeable was the large amount of hand labour employed in the breaking and sorting of raw materials, and also the exceedingly minute care taken in removing any foreign or undesirable matter from the broken mass. This condition arises from the fact that labour is the cheapest element in the cost of production and the saving of a piece of finished ware through this extreme care at the beginning of the manufacturing operations much more than offsets the slight additional labour cost. But the advancing cost of labour is giving the manufacturers great anxiety and causing them to consider wherein greater efficiency may be secured. This will not be an easy task, owing to the set habits of the Japanese workmen and the conditions under which they live and the associations with which they are surrounded.

The saggars used are of two general kinds, namely, the ordinary saggars of various sizes and shapes, and the setter-saggars. The use of the latter requires a much larger number of pieces to be made than in the ordinary earthenware pottery and machinery is used for this purpose. The sagger shop in this pottery is perhaps the largest one of its kind in the world, certainly the largest I have ever seen. It contains six large pug-mills, six large power-driven sagger presses, and 14 small hand-driven screw sagger presses, besides other presses for making props and batts.

*Mould-making.* The process of modelling, blocking, casing, and mould-making is identical with that used in our factories.

*Slip-House.* Almost every modern device of American, German, French or English manufacture for the making of slip and clay is to be found in this modern slip-house. Large double blungers are used for mixing materials. On an elevated concrete platform is a row of 6 feet Alsing ball-mills. These are used for grinding the feldspar, flint, rock-clay and glaze. They have the underground agitators and both types of lawns, both rotary and knocking type. The clay pumps are of the most modern German hydraulic type. They have also the upright and cannon



type of pug-mills. In this factory they make not only table ware, but also high tension electrical insulators. The clay as it comes from the pug-mills is in condition for use for the latter purpose, but for the purpose of making table ware this pugged clay is further manipulated by the French revolving pug-mill.

*Shop-Work.* The prepared clay and also the slip for casting is delivered in the various shops, each workman taking what he needs. The methods used in the manufacture are identical with those used in this country. The casting is done by both men and women, the pieces being completed by the maker, and the speed and efficiency in this department is quite equal to anything I have seen in America or elsewhere. There is some pressing done, but comparatively little. These potters are extremely efficient and clever in manipulating the clay on the throwing wheel. A good deal of turning naturally follows the process of throwing. The big jolly is in use and the hollow-ware jigghermen are skilful, but work at a speed about two-thirds that of American workmen in this department. The department in which the greatest amount of inefficiency is noted is the flatware jigghermen. This process is comparatively new in Japan and there seems to be a great difficulty in producing plates which will retain their shape in firing. A good plate maker is not able to produce more than 400 plates per day. Any attempt to speed up beyond this limit results disastrously. In making plates the modern spreaders are used in the forming of the batt. The making of plates and dishes is one which is a constant source of annoyance and anxiety to the Japanese manufacturers, and they frankly acknowledge that they have not succeeded in securing a reasonable output from these departments. There is a marked lack of up-to-dateness in their drying methods. Their drying rooms are not even conveniently placed to the workmen, and in most cases the workman does everything himself—spreads his own batt, makes his plate, carries it to the stove room, removes the dry plate, and carries the mould back to his bench.

*Inspection.* Extreme care is taken in the inspection of the clay ware. Any articles liable to develop cracks are very carefully tested and if any defect is observed, the piece is thrown into the scrap heap and the workman must make good the loss in his own time, and before he proceeds to earn his next day's pay.

Great care is also used in the matter of weight, especially in the making of goods going to countries where the duty is based upon weight, and where the item of freight by weight is of interest. The ware itself in the clay state is weighed carefully and, if over weight, is destroyed, the maker standing the loss.

*Biscuit Firing.* As stated, the clay ware is fired in the upper chamber of the kiln, being piled on fire clay batts, supported by heavy fire-clay props. No saggars are used in this firing.

*Glazing.* This process is accomplished by dipping, as with us, in a thin glaze. In some special cases, however, the glaze is applied by brush or by an atomizer.



*Glost Fire.* There is no stilting or pinning china ware. Each piece standing on its own bottom, it necessarily has a raw surface. The cups are placed upside down on rings, the edges of the cups first having had the glaze carefully removed.

These kilns are very substantially built and the heat attained in the glost fire is equivalent to No. 17 cone. Cones used in Japan are now made there by the Tokyo Kogyo Shikkenjo.

The drawing of the glost kiln is a remarkable illustration of efficiency. It is accomplished with great care and rapidity, one man handling every piece of ware coming from the kiln and being responsible for it. The unusual rapidity of this man's movement was explained by the fact that he is given a bonus for every hour of time saved. This is one of the few instances in the factory of anything approaching piece-work; everything else is based on the day wage.

*Selecting and Polishing.* The warehouse work in connection with this plant was extremely interesting, and differed in many respects from work of similar kind done in other parts of the world. After the ware is removed from the kiln it is taken into the selecting department. Every piece of ware is carefully inspected and assorted, and placed in four groups according to quality, namely; first second, third, and job lots. Each kind of article is placed in a separate box, convenient for handling and stacking, measuring 2 ft. long by 1½ ft. wide and 1 ft. deep. Such goods as require further care are sent to the polishing room.

The polishing room contained every kind of electrically driven polishing machine I ever saw, some of a perpendicular type like the American power driven whirler. These were used for the polishing of the rims of such articles as sugar basins, teapots, etc. There was the lathe or horizontal type for the polishing and buffing of the edges of cups, and the flexible drive type—such as dentists use—for the polishing of imperfections otherwise difficult to reach. There were between 50 and 60 persons engaged in this polishing room.

The ware, after leaving the polisher's hands, is ready for the store room to which it is carried in the aforesaid boxes, each box being distinctly labelled with the contents thereof and stacked for further requirements. The ware thus stacked requires no further counting or selecting because each box contains a given amount of ware. The ware is thus kept clean and free from dust, and is ready for immediate delivery either to the packing shed or the decorating department.

*Decorating.* Such ware as is intended for decoration is taken at night into the decorating shops, ready for the decorators in the morning. The ware decorated on the previous day is carried from the shops to the decorating kilns, the fresh supply of undecorated ware taking its place. This transfer is done entirely at night and does not interfere with the working of the decorator.

Decorating processes are the same as those used in America, namely: decalcomania, printing and filling-in, hand painting, ground-laying, airbrush tinting, gold paste work, gold stamping, gilding and etching.

The dinner ware is decorated largely by mechanical processes, but the decorating of ornamental ware is done almost always by hand. The decorated ware is fired in both the ordinary muffle kiln and the tunnel kiln, some of the kilns being arranged for the burning of coal and others for wood. At the time of my visit those using wood were being chiefly used because the wood costs less than the coal.

After the ware comes from the decorating kiln, it is taken to a room such as I have never seen in any other factory, continues Mr. Burgess. It is known as the standard sample room. One portion of this room is partitioned off with a wire screen which is kept under lock and key and is shelved from one end to the other. On these shelves are the standard decorated samples. Before an order is packed the standard sample is brought to the outer room and every piece of that special design is compared in detail with the sample. This was something new and interesting to me and I asked the reason why so much care was taken. The reply was that original sales were made from the standard sample and the purpose was to overcome the reputation made for much of the Japanese products, namely, that "the first shipment of Japanese goods may be satisfactory, but subsequent shipments are far inferior to the original. It is the purpose of this organisation to give uniform and complete satisfaction to the American buyers."

*Packing.* The packing department is also interesting as great care is taken to secure safe delivery. The goods are first wrapped in paper, then carried in the boxes to another department and placed in cardboard boxes wrapped in excelsior and each box tied and labelled. It is then packed in large packing cases and marked for its destination. These wooden-cases, as well as the cardboard boxes, are made in the establishment. The making of the wooden boxes is particularly interesting on account of the great rapidity with which they were put together. Explanation of this rapidity was the fact that they were being made by piece work.

A general observation of the method of work and pay indicated that speed and efficiency could be attained if there was sufficient incentive by placing the goods on a piece-work basis. In reply to the suggestion, I was informed that it would not pay the manufacturers to do this because of the slighting of the work by the operatives.

*Wages.* It is the purpose of the manufacturers in all lines, as far as I was able to learn and observe, to make the wages of the men and women in all departments correspond as nearly as possible, that is, the skilled workman, and this is arranged generally on a day basis, but it is distinctly understood that each operative must perform at least a given minimum amount per day. Thus the wages of the pressers, casters, jiggermen, decorators, etc., are about uniform. These wages have materially increased, an increase of 50 per cent. having been granted during the early part of 1919. The present wages are for girls under 17, 30 cents. per day; women over 17, 45 cents. per day; while especially good operatives are given as high as 65 cents. per day. Boys under 17 are paid 30 cents. the same as girls, and the average workman receives 60 cents. per day, while some of the more skilled men will earn as high as



85 cents. per day. Twelve hours constitute a day's work, and that is, from 6 in the morning until 6 at night.

*Percentage of Cost Elements.* I have reduced the percentage of cost to four items, that is, to the bare factory cost, exclusive of profits, and compared the costs of the last complete year, i. e., 1918 with 1917, as follows:—

	1917.	1918.
Materials .. .. .	20.6	22.6
Fuel .. .. .	25.7	26.2
Wages .. .. .	39.2	41.0
Overhead expenses .. .. .	14.5	10.2

*Living and Working Conditions.* It must be borne in mind that strikes are prohibited by law, and anyone engaged in a strike or conducting a strike is liable to imprisonment.

There seems to have been very little inclination to break this law among the Japanese potters as they are among the best paid labour in Japan. They receive more consideration from their employers than is general in industries as a whole. An inquiry along this line revealed the fact that in the largest of these concerns in Japan, a man was delegated to watch living conditions and to advise as to necessary increase in wages. Thus the demands of the workmen were anticipated and advances in wages were made without solicitation on the part of the operatives.

In the plant above referred to, the management looks carefully after the welfare of the operatives. They have comfortable dormitories upon the grounds to care for 700 of their working people. There is a large eating room with long table and benches, at which meals are served at moderate cost. Formerly the cost was 7½ cents, but on account of the increase in rice and foodstuffs, the rate now is 10 cents. per day. In another department was seen the day nursery, in which about 50 children were gathered, 18 of them being infants, all under the care of three competent women who care for, feed and amuse the children while their mothers are working. Near by is another building equipped as a hospital, with a first-class dispensary. In connection with the establishment, there has recently been established a mill and a store. Rice, millet, and other cereals are bought by the car-load, and ground or sold in their natural condition, along with other provisions, at cost sufficient only to cover the actual expenses of purchase and distribution.

In one of the decorating departments I noticed a large number of young boys and girls, many of them doing very excellent handwork. On inquiry I found that this branch was practically a training school for the establishment. Artists were employed, and had their time entirely occupied in training and teaching these children the theory and practice of the decorating art.

*Sanitary Ware.* Although Japanese sanitary ware has not yet entered as a competing factor into the trade of the United States, yet great progress is being made in the development of the industry. Great quantities of ware suitable only for Oriental use is made in all the different pottery sections. I was interested in noticing, in the district of Seto, a



sample of an English closet, which pattern is largely used in modern hotels and residences. I also noticed an exact reproduction of this closet in the clay and in finished ware on the floors of the factory. I learned that the men were paid 60 cents. a day for making this article, and produced four finished closets per day, good from kiln. I also noticed square lavatory basins costing the same as the closets. One man could produce four per day, the wages being 60 cents. These goods are glazed in the clay and fired in muffle kilns placed on clay batts, held up by heavy clay props. One of the largest sanitary establishments is located in another and very inaccessible district. This is a progressive and up-to-date concern, and has under construction a Dressler tunnel kiln. This has been a long time in the process of construction and is not yet completed. The product of this concern goes largely to India, China and Australia. None of it as yet has come to this country.

*Electrical Insulators.* In many of the districts insulators of various types are made, but the art is not nearly so developed as in this country, and some of the methods are extremely primitive, and it seems a wonder how the goods can be sold at such cost to manufacture. Much of the high-tension work is very well made, being thrown and turned on the same wheel. I watched many of these being made, and they could throw two per minute and turn two per minute. These men are on a piece-work basis, and earn as much as \$1 per day, working from twelve to fourteen hours.

*Selling Prices.* The difficulty in establishing anything like a uniform selling price of staple articles of Japanese manufacture is an extremely difficult thing to accomplish. It is largely a question of supply and demand, and each order is a separate proposition. If a buyer goes to a certain district, and that district is "long" on stock, he can make a very close deal. If, however, the manufacturers have little stock and have to manufacture to fill the order, the price will go up. There were small size teas, very crudely decorated, that were selling at 24 cents. per dozen, whereas the ordinary blue and white cup and saucer, with which you are all familiar, was selling at 65 cents. per dozen, and seconds of the same kind at 47 cents. per dozen. Common red-print ware, formerly sold as low as 18 cents. per dozen, is now selling for 52 cents. per dozen. The better grade of this cheap ware, white and gold, is selling at 60 cents. per dozen. These prices are f.o.b. point of shipment.

*Methods of Doing Business.* There are various methods used in disposing of the pottery products. Some buyers from this country will go directly to these small concerns and make contracts for their entire output for a season, thus assuring them of constant work and assuring the buyer of the lowest price. Most of the large manufacturers making the better grade of ware have connection with possibly half a dozen of these concerns, and act as their distributing agents, purchasing the goods directly from them and assuming all risk.

# Commercial and Industrial Organization.

## GUILDS AND TRADE UNIONS.

### COMPULSORY INSPECTION OF EXPORTS.

*Extracted by permission from the "Times" Trade Supplement,  
16th April, 1921 (Japanese Section).*

**M**OST people have heard of the clan system which figured so prominently in the social fabric of feudal Japan and persists to some extent even to this day; not many know that in the fourth century there were numerous organisations in Japan closely akin to the hereditary guilds of the later Roman Empire. Seamen, woodmen, carters, potters, swordsmiths, saddlers, scribes, farmers, fleshers—these were some of those who formed corporate associations for the purpose of protecting their own particular interests. These guilds or hereditary corporations are even mentioned in what may be termed the prehistoric period of Japan, before the Christian era, and it is certain there were such industrial organisations in Japan contemporary with the Roman invasion of Britain. In the sixth century, too, a regular system of numbering and registering ships was in operation, with a chief of the shipping bureau and a registrar of shipping.

To-day, the interests of employers and workers in industry, merchants, bankers, shipowners, and all other sections of the business community are protected by some sort of organisation. The actual degree of protection afforded is not easy to determine, but the fact remains that these organisations exist in Japan as in other countries. There are, for example, some sixty chambers of commerce. The chief of these—Tokio, Osaka, Kobe, Yokohama, Kyoto, and Nagasaki—are large and representative bodies, and among their members are the most prominent of Japan's business men. For some reason, however, the chambers of commerce in Japan do not enjoy the prestige of kindred bodies in Great Britain, and many of them discharge their duties in a perfunctory sort of way, without the keen interest and enthusiasm in their work which is essential to the real success of such organisations.

#### Manufacturers' Guilds.

Apart from the chambers of commerce are the various manufacturers' guilds and associations—most of them very strong numerically and financially, and exercising much more practical influence than the purely commercial organisations. Such associations as those of the textile manufacturers, cotton-spinners, flour millers, paper manufacturers,



straw-braid and matting makers, etc., represent huge investments in industrial undertakings, and whatever decisions these bodies reach in regard to trade policy are usually carried into effect. Guilds and associations of this character are much more influential than the chambers of commerce, although the manufacturers may be also represented on the latter. Petitions for or against Government action in connexion with their particular industry are frequently presented by the guilds, and their opinions carry considerable weight with the Authorities addressed, though this is not to say that the Government invariably approves the suggestions made. Dealers and brokers specializing in some particular commodity are also closely organized, and frequently make use of their strength to "bull" or "bear" the market according to their inclination at the moment. Even among retailers there are associations for trade protection, so that from the board of directors controlling some huge industrial plant down to the shopkeeper who retails the manufactures of that concern there are organisations of some kind for the protection of the interests of those financially concerned in the handling of the goods between the factory and the consumer.

There are over a thousand guilds in Japan connected with the handling of staple commodities; of these the principal are concerned with raw silk, rice, fertilizer, paper, porcelain, timber, matting, and braid. Recognised exchanges are also established in connexion with business in raw cotton, cotton yarn, silk, rice, and metals.

In Yokohama and Kobe there are business associations of which both Japanese and foreigners are members; silk and raw cotton are among the associations of this character. In the two ports mentioned there are also local boards of trade which serve in a way as chambers of commerce for the foreign merchants doing business in these places. These boards represent all the various interests in which foreign firms established in Japan are concerned—import, export, shipping, and insurance. The British Association of Japan, with branches in Yokohama and Kobe, also assists in watching the interests of British business in Japan.

### Labour Organisations.

Of much more modern growth, but certainly of no less importance, are the labour organisations in Japan. Trade-unionism has been for many years suspect in the eyes of the Japanese authorities charged with maintaining the peace and security of the Empire. A strike is an offence against the law, and, formerly, was very promptly dealt with as such. Since 1914 industrial conditions have changed very much in Japan, and with that change has come about a corresponding change in the official attitude towards labour organisation and labour disputes. It is realized that the workers in Japan intend to organise, and that to resist this determination would merely mean much unpleasantness that would be better avoided. The Government itself started a scheme a couple of years ago with the object of bringing about harmony between employers and employed, but, although a number of the most prominent employers of labour and influential public men were appointed on the



committee of this organisation, it failed to accomplish anything in the direction desired. As a matter of fact, this plan of the Government was regarded by the workers with precisely the same doubt and suspicion as the Government had been wont to harbour in regard to the efforts of the workers to accomplish something in the way of close organisation for the protection of their interests.

The latest official idea in Japan is a Labour Bureau, but whether this indicates any considerable departure from the policy which led to the establishment of the ill-fated "harmonizing" scheme yet remains to be seen. Meanwhile the workers themselves are steadily making progress with their own plans for organisation. There is no Labour Party in Japanese politics as yet, but there is a rapidly growing body of organized labour, and the evolution of a political party representing the opinions and ambitions of that body is merely a question of time and opportunity. There have been several ugly outbursts of temper resulting in "direct action" and "ca'canny" demonstrations, with occasional "sabotage," but meanwhile there is a quiet movement towards effective unionism among the workers, and an agitation for adult suffrage. Women took a very prominent part in the grave rice-riots of August, 1918, and there are now quite a number of women-workers who are members of some sort of trade union. The Socialist movement, as distinct from the labour movement proper, is also gaining some support in spite of the disapprobation of the authorities.

### No Union Among Unions.

Magazines and newspapers dealing wholly or mainly with labour and social problems are circulated throughout the country, and the success attending the efforts to give expression at the International Labour Conferences at Washington in 1919 to the real voice of labour has had a wonderfully stimulating effect upon the movement generally. There is nothing in Japan like the great labour organisations of Britain and the United States, in which the workers of a single industry are combined; the tendency is rather towards the formation of a large number of small unions rather than a small number of large organisations. It may be assumed, however, that the advantages of union among unions will ultimately be realized.

There is a Factory Act in Japan of ten years' standing, although it was only put into operation five years ago. Important amendments of this law have to be made in accordance with the decisions reached at the Washington Conference, especially in regard to nightwork and female labour to which references are made elsewhere.

It is not possible to arrive at any reliable estimate of the number of organized workers in Japan; almost all have some kind of organization though often in a very elementary form. The *jinrikisha*-pullers have their guild; the coolies working in the docks and on lighters have theirs; the compositors and the carpenters have their guilds and associations, but these are purely local bodies, and have no national status. The organisations which have the widest influence are more in the nature

of friendly societies than trade unions, due to the fact that until recently the law has frowned upon—where it has not actually prohibited—associations of workers aiming at the improvement of the conditions under which labour.

### **Individual Negotiations.**

Individual employers negotiate with individual guilds, and if the result is unsatisfactory nothing in the nature of a general strike can develop; the quarrel is purely local. It frequently happens, however, that demands are made in one locality which lead to another dispute elsewhere in the same industry, and thus extend the area of disturbance, without combined action between the two groups of strikers. Absence of organisation—and particularly absence of funds—made it impossible for a general stoppage of work to take place in any industry, with the result that labour disputes in Japan are confined to a series of local stoppages and disturbances. The number of these strikes during the last three or four years is considerable, and would have been much larger but for the fact that many employers showed a willingness to meet the men half-way and so avoid threatened trouble.

The Japanese Government maintains a Commercial Museum in Tokyo, which, in addition to showing exhibits of domestic and foreign goods, invites inquiries on commercial matters and acts as intermediary between Japanese and foreign merchants desiring to get into communication with one another. Reports are furnished as to the standing of Japanese firms, and correspondence undertaken in reply to any inquiries from abroad on commercial affairs. The Yokohama Specie Bank enjoys a special privilege from the Government whereby foreign bills of exchange are re-discounted by the Bank of Japan. Large sums of money are also paid by the Government as subsidies for oversea steamship services, while a graduated scheme of bounties is paid for the encouragement of shipbuilding.

### **Compulsory Inspection of Exports.**

There is an elaborate system in operation in Japan whereby certain lines of goods must be submitted to an inspector before being exported. Unless these goods bear the seal or brand which shows that they have been so submitted for approval, and have been passed as being up to the recognized standard of quality, they cannot leave the country for a foreign market. This, at least, is the theory, but cases have been known of goods plainly marked as rejected being shipped abroad. On the other hand, it sometimes happens that goods passed by the official inspector are rejected by the exporter to whom they are subsequently delivered for shipment. In other words, the inspection system is not yet entirely satisfactory in practice, although the motive inspiring it is excellent. The principal lines of goods which have to pass inspection before they can be exported are "habutae," chip braid, straw braid, hemp braid, soap, matches, glass and enamel ware, canned goods, matting, hosiery, cotton textiles, celluloid goods, brushes, and pencils.



The inspectors act under instructions from the manufacturers' guilds concerned with the industry, and usually perform their duties at the factories where the goods are made. In other cases the goods are taken to some central place—such as the premises of the particular guild concerned—and there examined. The inspection by the guild official of goods intended for export is obligatory, whether the manufacturer is a member of the guild or not, as the examination is carried out under regulations issued by the Department of Agriculture and Commerce. Generally speaking, however, the standard set is not very high, and the mere fact that goods bear the seal of approval placed upon them by the official inspector is no more than presumptive evidence that they come up to a certain standard of quality. The words "passed inspection" do not, for example, imply that the goods so marked are of the highest quality; they merely indicate that the goods are not of too inferior a quality for export.

### Origin of Complaints.

Having passed the official inspection, the exporter himself examines the goods and decides whether they come up to his standard. He cannot obtain regular supplies of goods which have not passed inspection, but he need not accept those which have gone through official examination, and in many cases he does not accept them. The system of compulsory inspection has developed as a result of complaints from abroad regarding the inferior quality of Japanese goods. These complaints, to some extent, arose from the fact that a number of small manufacturers were each given a share of a large order for export, and with their varying ideas of what was up to sample and what was not the result was not altogether satisfactory. Had those who subsequently handled these goods for export exercised proper care the trouble would have stopped here, but, unfortunately for Japan's reputation, goods obviously below the oversea buyer's standard were sent out of the country. The system of official inspection is designed to prevent repetitions of these unfortunate incidents, but as a matter of fact exporters in Japan of good repute themselves take all the precautions necessary to see that the goods they send out of the country are up to the standard of quality which the buyer abroad requires.



# THE POTTER'S WHEEL.

## Facts by the Wayside.

### CERAMIC LORE.

By Gonnoské Komai, Author of "Dreams from China and Japan."

*Extracted by permission from the 'Times' Trade Supplement,  
April 16th, 1921 (Japanese Section).*

"**W**ONDERFUL!" exclaimed my Western friend in deep admiration, after a silence of some minutes, as I showed him one of the Seiji censers or incense burners of the Tenryuhji Temple in Saga, Kyoto, so famed all over the country. The famous censer stood on the Tokonoma, the elevated seat of honour in the main reception room, which faced a magnificent garden, dotted artistically here and there with a great variety of dwarf trees, encircling a mirror-like pond where a dozen large carp, shimmering in gold and silver, red and dappled, were calmly swimming in sweet contentment.

"Soft, pale sea-green colour almost unparalleled in any of the ceramic creations of the West. How exquisite this céladon porcelain!"

The soothing silence was broken at last by my friend as he noticed one of the novices carrying in a brilliant set of the Kutani tea ware. Placing tea-cups, one each in front of us, and bowing respectfully, the novice said:—"How enjoyable it is to have such a bright day as this! We hope you will make yourselves at home and stay as long as you please."

#### Kutani's Charm.

"Arigato," I said with a deep bow, as I tendered my thanks. My friend was gazing intently at the Kutani ware, with its white background lavishly decorated in the gold and red peculiar to the Kutani products, so highly valued all the world over, appealing as they do to the Japanese and foreigners alike. Indeed, the contrast between the two kinds of ware proved so interesting to him that he wished to see other varieties of Japanese pottery—and modern specimens, if possible, so that he might purchase some.

As it was near "tiffin" time and we were on the loveliest spot of all Japan in the spring time—the vicinity of the Arasiyama Hill, luxuriant with the lovely blossoms of the world-famed cherry trees and picturesquely surrounded with innumerable young maples and gnarled old pines—I

suggested that we should go to one of the tea houses overlooking the Hodzu Rapids, on the further bank of the Arasiyama, only ten minutes' walk from the temple. The view from the Togekkyo Bridge, over which we crossed to the other bank of the Arasiyama, recalled at once the elaborate and lovely decoration of a fine piece of Kutani ware. You could see the fallen petals of cherry blooms floating like butterflies through the scented air. Beneath us were rafts swinging down the rapid waters of the blue Katsura, while around us brightly clad village girls with laughing eyes from Yase and Oh-hara poised upon their heads light loads of the daintiest flowers.

"Of course," I said to my friend as we walked leisurely to the tea-house, "you must remember that the making of porcelain and pottery is one of the most ancient of the Japanese Arts. Apart from the crude form of pottery such as we find in the earliest Japanese monuments—figures of baked clay, religious implements used for burning incense as well as for libations—the ceramic art of our country early attained a very high degree of perfection, largely owing to the influence of Chinese and Korean teachers and the distinguished patronage of the ancient daimyos. The latter especially encouraged in their own domains the craft and art of the various potters to meet the demands and requirements of the people. Generally speaking, the happy potters during this period of patronage by the great feudal lords were not worried by the perpetual anxiety of how to earn their livelihood for the morrow; their concern was to create and produce special ware which would give pleasure to their benevolent daimyos, who provided them with all they needed for the upkeep of their families. Hence they could produce pottery of superb excellence, frequently surpassing the products of the continental masters."

### In the Tea-House.

"Ah, here we are," I said as we reached the entrance. As no shoes or wooden clogs are allowed in our Japanese rooms, we had to leave these at the entrance to the main room of the tea-house, and sitting comfortably on the silk cushions, we ordered a characteristic Japanese luncheon. The Hodzu Rapids beneath us racing cheerfully downwards and the distant notes of warbling birds enhanced the charm of the beautiful scene with their sweet melodies.

"This is like a dream!" sighed my Western friend in evident delight.

Presently the "ceremonial tea"—the best green tea, powdered and served on special occasions—was placed before us in a crude, undecorated bowl. The colour of the tea was not at all like the ordinary Japanese tea, which has a golden tint, somewhat like amber.

"What is it?" queried my friend in surprise. "How quaint and funny this plain pottery is!"

"My dear sir," said I, "it is ground or powdered tea, and the bowl is purposely chosen to be in harmony with the ancient tea ceremonial."



This tea ceremonial, under the worthy patronage of our old Shogun, Asikaga Yorimasa, in the early 15th century, acquired a great vogue in our country, and is peculiarly characteristic of the most delicate phase of Japanese culture. Fortunately for the general public, the elaborate rules of the ceremony ordered the use of very common and plain pottery. This Japanese love of unpretentious simplicity is mainly attributed to the teachings of the Zen Sect, to which the Tenryuhji Temple we have just visited belongs, and to the discipline of the Chanoyu or Tea Ceremony. Nevertheless, these ancient tea caddies, bowls, kettles, water pots, and flower vases belonging to the tea ceremonial were highly prized in time of yore, and still command extremely high prices even at the present day."

"What is that article on the Tokonoma, a sort of china, decorated with brocade-like embroidery?" asked my friend, pointing to a very beautiful modern Satsuma-Yaki vase, the few blossoms in which were the only ornament in the spotlessly clean eight-matted room.

"Oh yes, that is a kind of craquelé faience baked in Satsuma Province. Although the Chinese potters used to express contempt for this faience the Japanese ceramists reached a high degree of excellence in this particular art. Indeed, the best specimens of Satsuma ware, new and old, together with the choicest samples from Kyoto, enjoy indisputable pre-eminence in the realm of world-faience.

"I am glad you did not fail to notice one of the best types of china ware in our country. I might just as well mention that, as in other branches of Japanese art, the difficulty of our potters is to find suitable clients, now that the old feudal lords have lost much of their wealth and influence. At present we have nothing to replace those appreciative customers who so abundantly rewarded the patient perseverance and subtle application of genius essential to the creation of masterpieces. With the exception of the citizens of the United States, who are some of the greatest patrons of Japanese porcelains, and whose good taste has encouraged immense improvements within the past half-dozen years, the greatest demand from other foreign countries is for cheap productions with extravagantly gaudy decoration. The result is, I am sorry to say, that articles which we Japanese would never dream of placing in our own homes find their way abroad to misrepresent our taste. It is but natural that the foreign demand for inartistic exports has re-acted disadvantageously upon the Japanese art of pottery. But the Government and people are both now exerting themselves to prevent this tasteless admixture of foreign and native elements in form and decoration. Mind you, some of the modern productions made for those who are prepared to pay the necessary price are exquisitely magnificent and deserve comparison with the choicest examples of ancient pottery."

Quietly opening the sliding screen, a pretty little maid, who looked as if she had walked out of a Utamaro wood-cut, entered carrying two square, black lacquered trays with little "saké" cups. A second maid then appeared with a "saké" bottle and two bowls of soup. While

enjoying the delicious soup and the saké poured out for us by the lovely maid the whole procession of dainty little plates and dishes appeared upon our trays. There were beautiful dishes arrayed in magnificent style, plates charming and varied, the plain Bizen, the beautifully enamelled Imari of diverse colours and crowded designs, the Arita ware in its unrivalled blues, the Raku with its monochrome, characteristic of some of the Kyoto porcelain, covered with minute cracks—a special reminder of one of Japan's ablest warrior-statesmen, the great Taiko Hideyosi, who patronized it in the 16th century. This Napoleon of Japan desired his country to rival China and Korea in the arts and promoted the establishment of pottery works around Kyoto, the ancient capital of Japan. We tackled the excellent soups—turtle and soya bean soup—as well as a series of dainty dishes composed of young salmon, trout, carp, bream, boned-eel, all deliciously prepared in different styles, with plenty of vegetables, not forgetting the inevitable young bamboo shoots, peculiar to the Saga district.

My friend, I noticed, had been keenly admiring the excellent quality of our modern pottery, and curiously watching my easy manipulation of the all-important chopsticks which serve as our knives and forks. While heroically struggling with the fragile chopsticks he appeared to be still more absorbed in admiration of the brilliant success of the Japanese potter in producing celadon, blue, ivory-white, glaze-painting with enamels, mirror-like black, translucent decoration, diverse sub-glaze tinctures, as revealed in red, green, gold, and iron-black.

His thoughts were revealed as he asked:—"Are these the common modern Japanese pottery productions which anybody in your country can afford to buy for use at home? If so, certainly the Japanese porcelain, even the table-ware of the poor, is infinitely superior and undeniably more artistic than that of the higher classes in Europe and America. How many works are there in Japan for the production of this modern pottery?"

### The Modern Craftsman.

"Although with the abolition of the feudalism in our country," I answered, "the ceramic art suffered a temporary relapse and the number of famous districts engaged in the craft diminished considerably, there are at present some dozen and a half places distinguished for the production of modern pottery. The most celebrated are Tokyo, Kyoto, Hizen, Seto, Mino, Kaga, and Satsuma. The modern Japanese potters, however, do not seek to make a name for themselves by reproducing ancient masterpieces; none the less, they certainly produce work as remarkable for beauty and refinement as that of the past. Ever since the contact of East and West the Japanese ceramists have had to turn out a much greater variety of forms than before, and at the same time adapt their craftsmanship to the requirements of new markets at home and abroad.

"Furthermore, you must bear in mind, my dear friend, that as in the past, when Japan successfully assimilated the Chinese and Korean arts, so to-day the modern Japanese pottery has had to adapt itself to



the modified environment and the conditions created by the introduction of Western civilization some 55 years ago. Our country can no longer afford to send out to the world exclusively the toy-like potteries of Old Japan, specially manufactured for home consumption, however exquisite in form and superb in quality. As in other walks of life, in the adaptation of modern civilization from the West the Japanese Government, under the Meiji Era, employed a certain number of Western experts with a view to introducing new methods and the use of Western pigments in decoration. Various native kilns, more particularly those of Owari, Mino, and Kyoto, underwent lamentable changes in consequence of the new measures adopted by the Government. Although these proved far more profitable financially in their direct appeal to the artistically uneducated taste of Europe and America, some of the native kilns suffered grievously, and the result was a sad decline in the ancient and unique art of Japanese pottery.

### Seto-mono.

"*Seto-mono*," the general name given to Japanese potteries as a whole, which means things made at Seto or "*Seto-goods*" is applicable to the articles manufactured in Seto in Owari Province, which are commonly of cheap quality. But Nagoya, the Japanese Manchester, second to Osaka, in the same Province of Owari, is of late turning out considerable quantities of good-quality hard porcelain for export purposes. Gifu, a neighbouring pottery town, is following suit, although it is more noted for gay and fanciful products in poor taste designed to please foreign markets. In this connexion I must not forget to mention a very strange incident which occurred to me on a visit to Europe. Just as an extraordinary kind of kimono with gay and bright embroideries specially designed for the very ignorant and artistically uneducated classes among the Western peoples was quite the fashion amongst high society there, so extraordinary porcelains and earthenwares with frightfully giddy decoration, uncommon figures supposed to be Japanese butterfly ladies, pass as genuine specimens of the artistic pottery of Japan. The writer was once asked his opinion of a certain kind of so-called Japanese porcelain. The only possible answer was that it must have been made either in Birmingham or in Germany—a frank answer which greatly offended my simple-minded inquirer.

"In addition to the hitherto exported articles such as tablewares, kitchen utensils, fancy goods, toys, etc., Japan is now busily engaged in the manufacture of insulators, medical, sanitary, scientific appliances and other apparatus. Large numbers of these articles find their way to the United States, Australasia, South Africa, etc."

My dear Western friend,—Herewith, as promised, I enclose the dry statistics of the exports of Japanese potteries from 1910 to 1919, hoping that you did not find my account of the modern pottery industry of Japan too tedious.

Meanwhile, I thank you heartily for the kind patience with which you listened to my dull discourse on the subject the other day. I only wish that you had been fortunate enough to have that ceremonial tea served by one of the celebrated beauties of the Miyako-Odori Dance group at Kyoto, duly surrounded by some of her lovely companions.

Yours very devotedly,

GONNOSKÉ KOMAI.

Year.	Value.	
	£	Yen.
1910	551,393	5,513,923
1911	537,771	5,377,705
1912	545,172	5,451,715
1913	663,734	6,637,337
1914	591,377	5,913,768
1915	695,294	6,952,953
1916	1,204,036	12,040,357
1917	1,447,394	14,473,934
1918	1,995,779	19,957,782
1919	2,262,978	22,629,775











